AMERICAN
JOURNAL OF SURGERY

VOL. XXV. FEBRUARY, 1911. No. 2

VERY RAPID INTESTINAL RESECTION WITH A TECHNIC COMBINING MURPHY BUTTON, HARTLEY AND LILIENTHAL METHODS.

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"Quick in and quick out," with other improvements, as Murphy irrigation and the Fowler position, have cut the mortality in desperate surgical abdominal conditions to an insignificant figure.

In intestinal cases long operation are so particularly dangerous that many authorities advise enterotomy with no immediate attempt at resection. The after-history of enterotomy, however, is so unsatisfactory, that most of us have taken great risks of losing our patients, in order to do an operation which, if successful, will be complete and satisfactory. I have found that a lateral anastomosis with a Murphy button by a method to be described may be done with such rapidity that an immediate resection may be safely accomplished.

I use the Hartley method in making the lateral anastomosis, dropping half of a Murphy button into each open end of the gut which is left after resection, and, after closing the ends of the gut by the Lilienthal method, I push the halves of the button together.

The usual method of closing the ends of the gut, by tying and then inverting with another suture, takes considerable time and is not always satisfactory. The gut is more or less swollen and edematous and is very tender and vascular. It does not turn in rapidly and it is apt to bleed and pull out. A poorly turned-in end has compelled me to make a higher resection. It has taken me a large part of the time of the whole operation to turn in the ends. Why turn them in?

In a recent operation when I was especially pressed for time, I remembered that in cases of necessity Lilienthal of New York had simply tied off the gut with twine instead of turning in or sewing up the end.* I at once applied this principle as less dangerous than a longer operation, and I have now used it six times with six successes.

In three cases of strangulated hernia, I have resected, made a lateral anastomosis with the Murphy button by the Hartley method, tied off the ends of the gut with fine linen or silk by the Lilienthal method, cut off the ends of the silk short and dropped the gut back, closing the abdomen without a drain.

In one case of strangulated hernia I did the same, except that on account of the evident infection, I left a rubber drain down to the closed peritoneum.

In one case of tuberculous salpingitis in which resection of gut was necessary it was accomplished as above without drainage.

In one case of appendicitis in a child of eight the end of the cecum, one and a half inches above the root of the appendix, together with the appendix and its mesentery, were tied off with one ligature and cut away.

TECHNIC OF OPERATION.

1. *The Damaged Gut is Resected.* The gut is delivered and held up with both hands so that the blood supply in the mesentery can be seen. An electric light covered with sterile gauze may be held behind to make the vessels plain. The vessels at the apex of a "V" of mesentery which supply the gut below and well above the strangulated bowel, are tied off. As each inch of the root of the mesentery supplies about three feet of gut, care must be taken not to tie off the blood supply beyond the proposed resection.

The bowel to be resected is double-clamped above and below. The "V" of gut and mesentery is cut out between the clamps (Figure 1).

In a resection of a strangulated femoral hernia, if the femoral ring, after the strangulation is relieved, is not large enough to allow intestine containing a Murphy button to be easily returned, the incision should be extended above Poupart's ligament, opening the abdomen, delivering and resecting the strangulated gut. It is a very great mistake to operate in any hernia without seeing that the opening through which it is delivered is large enough to draw out plenty of gut and mesentery without the slightest constriction. Such an opening will usually be large enough for the Murphy button. We must not risk tearing the gut or returning necrotic gut or thrombosed mesentery. If

* Intestinal Resection: Preliminary Report of a Simplified Method. Howard Lilienthal, New York, American Journal of Surgery, March, 1909.

the opening is tight or the mesentery short, it is better to extend the incision above Poupart's ligament and resect through the inguinal region.

2. *Half of a Murphy Button is Dropped into Each Eye of the Open Ends of the Gut.* One of the clamped ends is held up and three artery forceps are used to take hold of its cut circumference. The intestinal contents are milked back between the fingers, the clamp is released, half of the button

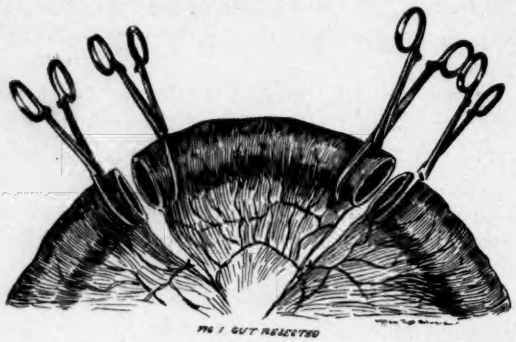

FIG 1 GUT RESECTED

is dropped in, and the clamp is at once reapplied (Figure 2).

If the bowel above is badly distended, instead of reclamping, I tie in a long rubber tube, to discharge quarts of gases and fluids while the other end is being prepared. This maneuver takes no time and is a life saver.

Murphy buttons with large bore should be purchased and a size should be used which is small enough not to crowd.

3. *The Ends of the Bowel are Tied Off.* A fine

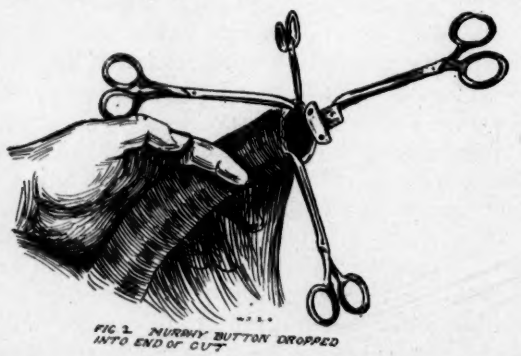

FIG 2. MURPHY BUTTON DROPPED INTO END OF CUT

silk or linen ligature is tied tightly around the end of the gut as the clamp is loosened. Any surplus end is cut off and the mucous surface is touched with pure carbolic acid.

4. *The Halves of the Murphy Button are then Joined.* In lateral anastomosis the results are equally good whether the bowel is left straight or folded. If the bowel is folded with the ends in the same direction, the raw ends may be placed together with less possibility of adhesions; I therefore place the closed ends of the bowel in the same direction.

The cylinder of each half is pushed against the side of the gut at such a distance from the closed end that it will neither crowd the end nor leave a pocket beyond the button. The gut over the end of the button cylinder is cut and the cylinder is pushed through (Figure 3). Care must be taken not to stab the knife down the cylinder and cut the opposite side of the gut.

The two halves are now pushed snugly together, making the anastomosis complete. In pushing the halves together care must be taken not to cut the gut by pushing hard with the fingers on a cylinder which may be long enough to protrude through the button (Figure 4).

5. *The "V" in the Mesentery is Closed.* The raw tied-off ends of the bowel are brought together by the running catgut stitch which closes the "V" in the mesentery (Figure 5).

6. *The Abdomen is Closed.* In an operation on a very badly necrotic hernia with the patient in great shock, I have simply drawn the wound together with a silkworm-gut stitch, leaving a drain to the peritoneum.

CASES.

CASE I. March 31, 1910. Strangulated Femoral Hernia. Mrs. D., aged 50, brought into the Good Shepherd Hospital, Syracuse, N. Y., at 4 A. M. and operated upon at 4.30 A. M. Chloroform had been given the night before and unsuccessful efforts at reduction made. Ether. Incision over hernia, constriction relieved. Gut dead; nine inches resected. Patient in bad condition. Hartley method with Murphy button used. I felt that time taken to close the ends would be more risk than the Lilienthal method. I tied off the ends, pushed the gut back into the abdominal cavity and closed with through and through stitches, without drain. Recovery perfect, button came away sixteenth day.

CASE II. April 9, 1910. Strangulated Inguinal Hernia. Mr. W., aged 35, expressman, had been operated upon for right hernia ten years before, had had much trouble for years with left hernia, which the doctor had reduced several times with great difficulty.

I was called to his home, ten miles north of Syracuse, and saw this patient two hours after the beginning of a very severe attack, which his doctor was unable to reduce. The patient allowed us to give chloroform to try to relieve, but commanded us not to operate under any circumstances. Efforts at reduction failed, and of course did the usual damage to the gut. Twelve hours later, he begged for operation and we resected on his kitchen table. He was in very bad condition, with pulse very irregular and intermittent. Ether. Incision found the gut with bad odor and black; twenty-three inches

were resected as above and the wound closed without drainage. Perfect recovery. Button appeared the eleventh day.

CASE III. April 11, 1910. Strangulated Hernia. Mrs. M., aged 60, seen at eight A. M. at her home. April 9, she had pain and vomiting and her doctor investigated an old hernia which had never given her any trouble. She felt better, but had another attack the following day which again improved.

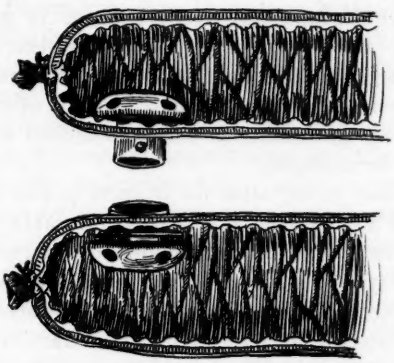

FIG. 3. ENDS TIED. CYLINDER OF MURPHY BUTTON PUSHED THROUGH CUT.

April 11, at five o'clock she had another very severe attack which has lasted until ten A. M. when I operated at the Good Shepherd Hospital. Femoral hernia, omentum and gut black. Gut ruptured as I tried to draw it down. Incision was extended and clamped ends of bowel brought out of abdomen above Poupart's ligament, the wound being protected with gauze. Thirteen inches of gut were resected by the above method and the abdomen closed without a drain. The patient recovered perfectly. The button was not found, but the *x*-ray

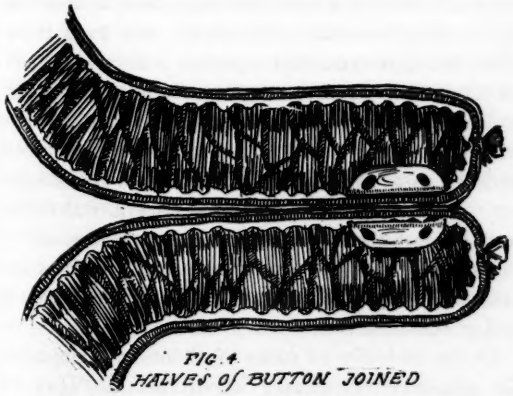

FIG. 4. HALVES OF BUTTON JOINED

showed that it was not present when she left the hospital.

CASE IV. Mrs. D., aged 24, typical history and signs of *tuberculous salpingitis*. Ether. Operation performed at Good Shepherd Hospital. Large right and left tuberculous tubes were removed. The right mass communicated with the ileum six inches above the ileo-cecal valve. The bowel was very badly torn in separating it from the mass and four inches required resection. The gut was thick and poor and the patient was in very weak condition and great haste was required. I resected by the above method and closed without drainage. Recovery was perfect; the button passed the eighth day.

CASE V. June 13, 1910. Strangulated Femoral Hernia. Mrs. S., aged 64, sent into the Good Shepherd Hospital, Syracuse, N. Y., with history of having had obstruction of the bowels for five days. She had refused to come earlier. Pulse 126, temperature 96.5°, vomitus very foul, general condition very wretched. Hard mass in left femoral region. Was given a few whiffs of ether; the stomach was washed out; incision over hernia; gut necrotic; five inches resected as above. Peritoneum closed. Wound drawn together with one silkworm-gut stitch, a rubber tube being left to peritoneum. Considerable pus in superficial wound for one week. Recovery perfect. Button passed on tenth day.

CASE VI. June 23, 1910. Gangrenous Perforated Cecum. Miss L. B., aged eight. Good Shepherd Hospital. Acute appendicitis for three days. Temperature 103°, pulse 120, distention and rigidity. A few whiffs of chloroform; incision through right rectus; appendix and cecum brought up, gangrenous, perforated. Perforation of the end of cecum for one inch beyond base of appendix. Patient in desperate condition.

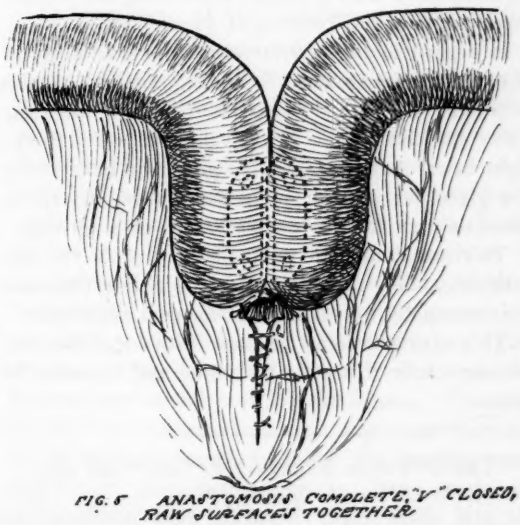

FIG. 5 ANASTOMOSIS COMPLETE, "V" CLOSED, RAW SURFACES TOGETHER.

I tied a linen ligature around the end of the cecum, including the appendix and mesentery, and cut away and touched the end with pure phenol. I left the ligature long and drew the closed end of the cecum up to the top of the wound which I closed with one silkworm-gut stitch. This brought the raw end against the parietal peritoneum. No effort was made to clean out the pus. The patient was put to bed on the right side with a rectal tip in the anus to prevent gas pressure on the repair.

The operation was at 11 P. M. Next morning

the drains were twisted; the following morning they were removed, and the silk ligature which had been left long was cut off as short in the wound as possible.

The child made a remarkable recovery, with very little pus discharge after thirty-six hours, and no fecal fistula.

In cases similar to this, I prefer a ligature, rather than to leave on a clamp which will prevent the neighboring peritoneum burying the repair and supplying a cover for any end which has been left raw.

SUMMARY.

A very rapid resection may be done by: 1. Dropping half of a Murphy button into each end of the gut; 2. tying up the ends of the gut with fine silk ligatures and disinfecting them with carbolic acid; 3. pushing the halves of the button together to complete the anastomosis; 4. closing the "V" in the mesentery with a stitch; 5. drawing the wound together with a silkworm-gut suture.

In regard to the *after-treatment,* water is given at once and the stomach is washed out with a tube as required. After twenty-four hours, albumen water and beef juice are given, and after forty-eight hours malted milk. No physic or hard foods are given for a week. The bowels are moved in three or four days by enemata, and suppositories.

This combination of methods is suitable for any case demanding resection of the small intestine, and it is especially useful if great haste is required.

This operation may be done with local anesthesia, especially if a little morphine and hyoscine be given.

THE SURGICAL RELATION OF THE NOSE AND MOUTH.

Whether a deformity be one affecting the shape of the mouth, a deviated septum, harelip or cleft palate, or all combined, and no matter how extensive the defect may be, the first principle to be considered is to bring the nose as nearly as possible into correct form, not only with regard to its external appearance, but also for nasal breathing because upon this must depend continuance of whatever beneficial result may be attained.

In my experience, it is useless to perform even the most perfect lip operation, without correcting the form of the nose, or without readjusting muscular attachments that may be imperfect, because the shape of the mouth and particularly the labial portion, is naturally subject to the influence of these conditions.—GEORGE V. BROWN in the *Iowa Medical Journal.*

ABDOMINAL INJURIES AND THEIR TREATMENT.*

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Notwithstanding the rapid advance in general surgery and the large numbers of workers who have familiarized themselves with abdominal surgery, there exists an astonishing diversity of opinion regarding the manner in which abdominal injuries should be managed.

One can hardly state his position in this matter without a brief general survey of the subject, and, therefore, I would offer an outline of the two commonest types of serious injuries usually met with in civil life. (It must be recognized at the start, that bullet wounds as they occur in military life are quite different in manner of reception, in the lesions which follow, and the method of treatment). It is proper to divide abdominal injuries into two great classes: contusions and penetrating wounds, eliminating entirely, except in matters of diagnosis, the traumatisms which involve only the abdominal walls.

CONTUSIONS.

Contusions of the abdomen have been called "unimportant" unless there is created thereby serious damage to one or more of the intraabdominal viscera. At first glance this may seem reasonable, but to this there must be offered two exceptions: First, the cases recorded in which muscular attachments have been torn away or muscles ruptured, and yet no visceral damage has been provoked; this occurs most commonly to the recti muscles. Second, the cases of immediate death from shock without injury to the intraabdominal viscera, due to impact against the upper abdomen, with bruising of the solar plexus and the transmission of fatal impulses through the medium of the pneumogastric and phrenic nerves.

In the majority of cases of abdominal contusion, the question of primary importance is "Has the integrity of any abdominal viscus been impaired?" To answer this question we need not only a fund of observations but thorough knowledge of the mechanical elements which may be involved in the production of abdominal contusions.

Injuries of this type may result from falls from

* Read before the Medical Society of Greater New York, February 14, 1910.

varying heights, violent compression between heavy bodies, or between one moving and one stationary object, or from blows received on the abdomen from some blunt object. Often the person injured is in motion, as in a fall. On the other hand, the injury may be received by an entirely passive individual. The definite causes of such injuries are:

1. *Blows* from fists, kicks from horses or other animals, flying objects of weight, or stones or flying balls, wagon-poles, and automobile lamps or fenders.

2. *Crushing* by wagon, car, or automobile wheels, between moving elevators and the walls of their wells, or between heavy bodies, or by falling walls of buildings, stones, trees, packing cases, etc.

3. *Colliding* with chairs, tables, pillars, posts, etc.

4. *Falls* from a height upon water or upon the angle of any hard object. We should include also those cases in which ruptures of the abdominal viscera occur by indirect violence, as by falls from a height, when the patient lands upon his feet or upon his ischial tuberosities, or when bumped violently while riding in a conveyance while it passes over an obstructive object. In the former instance (landing on the feet), the mesentery may be torn, or the fixed attachments of the intestines. In the latter cases the exploded viscus is almost invariably distended, the bladder or intestine torn.

In this connection I might cite two cases of mine in which the distended appendix seemed unquestionably to rupture during transportation from home to hospital. Spontaneous ruptures of hollow viscera have also taken place from increase of abdominal tension during sudden excessive exertion. No such cases have come under my observation but I have found a number reported in the literature. One author (not recalled) reports a spontaneous rupture of the splenic flexure of the colon when the patient was not undergoing any exertion.

To a certain extent the amount of damage resulting from contusion depends upon the thickness, the tone, and the state of contraction or relaxation of the muscles of the abdominal wall at the time of injury.

In 90 per cent. of the cases, muscular young men in good physical condition receiving a blow of great severity, with all of the abdominal muscles tensely contracted, will probably suffer no injury to the viscera, except from crushing between great weights. On the other hand, an aged man, a weak woman or a child with slender, relaxed muscles will be apt to receive serious injury to the viscera from comparatively moderate contusions. So it is important to consider the muscular development and general condition of the patient and to ascertain the presence or absence of muscular contraction at the time of injury, whenever this is possible. In patients who have a preexisting inflammation which has left many tangling adhesions in its wake, we find an unusual tendency to visceral injury.

Contusions involving the alimentary tract in serious injury, and those damaging the solid viscera occupy a place by themselves. Turning to the former, the alimentary tract, we should recognize four types of injury.

1. Crushing between the force applied and some portion of the bony framework of the trunk.

2. The bursting of a more or less distended viscus by a sudden sharp blow.

3. Laceration or tearing near or at the points of attachment.

4. Laceration of the attachments themselves.

I. Crushing between the force applied and some bony substance as the spinal column, the pelvic wall, or some movable object external to the body, as a partition wall, ground or other object behind the injured, is probably the commonest type of injury which causes a break in the integrity in the walls of the alimentary tract. The result of such injury may be an opening in the stomach or intestinal wall, generally circular in form, resulting immediately; or, one or two coats may be torn and the other so compressed as to necrose later. Again, such an injury may cause more or less extensive hemorrhage in the wall of the viscus. This may be slight and unimportant, or it may be so extensive as to cause a necrosis of either the mucous membrane or peritoneum, giving late symptoms. Hemorrhage here generally takes place into the submucosa and may dissect up the mucous membrane over a large area. One hundred and fifty cm. of necrotic mucous membrane has been passed by rectum after such injury (von Bergmann). Hemorrhages here may lead to ulceration of the mucosa. If the peritoneum alone is damaged spontaneous healing may take place. If the muscularis is torn with the peritoneum ultimate perforation almost invariably takes place.

In the second class (rupture or bursting of a viscus) we have an explosion from within outward, so that the opening in the mucous membrane is usually larger than that in the peritoneum. Distension of the hollow viscera naturally predisposes to such a rupture. In these cases a severe blow must be so directed suddenly as to effectively compress a distended viscus sharply against bone or

some unyielding muscle. In the intestine this not only occurs when the gut is distended with partially digested food, but also when gas is present to a greater or less degree above constricting adhesions, hernia, or a compressing tumor. Ruptures may be single or multiple. Sometimes two distinct ruptures of the same coil may take place near each other, or two or more ruptures may be widely separated by an uninjured stretch of the tube. Here, as in the crushing injuries, partial ruptures of the intestinal wall have been exposed with only one or more coats involved. Theoretically a rupture of the mucous membrane alone is possible. The only proof which we can have of this is the bloody stool, and this may be due to necrosis of the mucous membrane liberating submucous hemorrhage. Partial ruptures may not immediately affect the integrity of the intestinal wall and may break down many days after apparent quiescence. In some small ruptures the edges of the mucous membrane may pout into the opening and prevent the escape of feces. But in cases of larger perforations intestinal contents invariably soil the peritoneum. Infiltrated hemorrhagic areas surrounding the rupture of intestine may become necrotic; therefore close observation and careful judgment are necessary in their management.

3. Lacerations or tearing at or near points of attachment are more apt to take place in the contusions due to passage over the body of wheels of vehicles, in elevator casualties, or the crushing against a wall by a moving car so that a rolling effect is produced, grinding the stomach or intestine against the firm vertebral column or the pelvis.

4. Lacerations of the attachments themselves are observed largely in the various mesenteries, are due to a crushing and rolling trauma or sharp localized blows, and result in the immediate cessation of blood supply to a definite area of intestine, in the formation of a hematoma which secondarily causes necrosis and peritonitis, or in immediate copious hemorrhage into the general cavity of the peritoneum. In some instances this hemorrhage is rapidly fatal unless quickly treated. Coils of intestine have become herniated through the openings produced by laceration of the mesentery from abdominal contusion. Dr. A. H. Bogart reported such a case before the Brooklyn Surgical Society in June, 1908.

The patient had been injured by a kick. The immediate shock was followed by apparently complete recovery. Three days later symptoms of intestinal obstruction supervened. Abdominal inspection revealed a hernia of the ileum through an opening in its own mesentery. Resection was done and recovery followed.

Ruptures of the stomach occur generally in the lesser curvature, although quite frequently the integrity of the anterior wall is broken. Such ruptures are usually the result of crushing blows, and yet cases are on record where a rupture of the stomach has been caused by very slight traumatisms, even violent contraction of the abdominal muscles after excessive eating or drinking. Ruptures of the intestines are most common at the duodenum, in the upper jejunum or in the lower ileum, probably because these portions are more fixed. Likewise ruptures of the colon are most common in the cecum and ascending colon.

Regarding the relative fequency of ruptures of the various portions of the alimentary tract, we conclude from our study of the literature that injuries to the stomach occur in about 10 per cent., to the large intestine in about 12 per cent., to the small intestine in 78 per cent. of the total. The sigmoid is more frequently ruptured than the transverse colon.

SYMPTONS.

Contusions of the abdomen commonly cause shock and pain varying in intensity. The pulse rate is usually somewhat increased, sometimes very rapid, rarely very slow. Vomiting is present, rarely absent. Shallow respiration is common but not invariable. The facies resemble abdominal facies even when there is no absolute rupture. In these cases it may be difficult to differentiate between shock due to visceral rupture and hemorrhage. As abdominal section should be promptly applied in every such case, this differentiation is not important to the patient.

The shock may be so extreme as to threaten immediate dissolution, but in most cases it is followed by a more or less prompt reaction under proper measures, viz., application of heat, hypodermatic stimulation, Trendelenburg position and inhalations of ammonia, alcohol or oxygen. The degree of shock unfortunately does not inform us as to the severity of the injury to the abdominal contents. The pain is usually rather severe in all cases. Its rapid improvement may signify freedom from visceral injury, but by taking this for granted we may be grossly deceived. Persistent pain is a cause for suspicion. The pulse, if it improves during the reaction, may continue to improve in quality for many hours, even though gastric or intestinal contents are pouring into the general peritoneal cavity. Increasing rapidity of the pulse is indicative of visceral rupture or internal hemorrhage.

Vomiting, if repeated, and especially frequent

vomiting of bile is indicative of gastric or intestinal rupture. Vomiting of blood usually means rupture of the stomach. No reliability can be placed upon the absence of blood in the vomited material or the feces.

Wavelike pains tending to spread to the right may indicate gastric or duodenal rupture. Hyperesthesia of the abdominal surface is common in cases of grave internal injury. Bloody stools occuring soon after an injury demonstrate a hemorrhage into the intestine, nothing more. The cremasteric muscles are usually contracted in cases of gastric or intestinal rupture.

Many times it is *impossible,* in the first few hours following the abdominal contusions, to make an absolute diagnosis as to the presence or absence of visceral ruptures without making an exploratory incision. All of the ordinary symptoms caused by serious injury may be present without visceral damage, and the absence of classical physical signs, and of some of the symptoms are no guaranty of freedom from ruptures which may be fatal in a few days unless they are closed. Tenderness and muscular rigidity are often absent in cases of visceral rupture. On the other hand, I recall one case in which the rigidity of the right rectus was extreme and no visceral injury existed. Increasing abdominal rigidity invariably indicates a rupture in one of the hollow viscera. Radiating pain has been considered pathognomonic by many surgeons.

Within six to thirty hours after the injury, the symptoms due to the escape of the solid, fluid and gaseous contents of the stomach and intestine into the abdominal cavity, grow progressively more marked. The pulse increases in rapidity, the respirations grow more frequent and shallow, the face assumes the typical expression, and sooner or later vomiting appears, if indeed it has ceased at all. The obliteration of the hepatic dullness is common but cannot be considered pathognomonic of ruptured hollow viscera, as distended coils of gut may be forced upward along the lower edge of the liver or become wedged in front of it. And, *per contra,* not all cases of ruptured gastric ulcer nor intestinal rupture give these signs. Mikulicz once obtained a gas which he could ignite by aspirating the peritoneal cavity and thus diagnosed a rupture of the stomach in a man who had been on a prolonged debauch.

The rapidity of onset of the symptoms of rupture of the hollow viscera depends: (1) On the amount of food, water or gas contained at the time of injury. (2) The location of the injury, for the chemical and bacterial contents of the lower portion of the alimentary tract are more irritating than those of the upper. (3) The size of the opening, determining to a large extent the rapidity with which contents are poured into the peritoneal cavity. (4) The type of injury, whether complete or partial rupture or the tearing of attachments. In cases where a partial rupture or laceration of attachments has occurred, there may be no grave symptoms for several days or even weeks.

PROGNOSIS.

The mortality of contusions of the abdomen with rupture of stomach or intestines, treated by the expectant method is within a small fraction of 100 per cent. Immediate exploration—within six hours—reduces this to about 30 per cent., including the most extensive and hopeless cases. Cases of splenic or liver rupture recover occasionally without operative interference. Renal ruptures are often recovered from if treated expectantly.

About 50 per cent. of the cases operated upon within twenty-four hours of injury recover and 20 per cent. of those injured treated expectantly for more than twenty-four hours or less than forty-eight hours. Lahoda saved a case of rupture of the stomach with well developed general peritonitis by operation eighty hours after injury.

TREATMENT OF ABDOMINAL CONTUSIONS.

In general it may be stated that in all cases of visceral injury or suspected visceral injury an immediate exploration is indicated. We may allow a brief period (one-half to three hours) to elapse to permit partial recovery from *severe* shock. Whenever there is any doubt in the mind of the surgeon as to the existence of a visceral injury an exploration under proper aseptic precautions is much safer than waiting for the development of the symptoms of peritonitis. Especially is this so when the injury has been of such a nature as to constitute a sufficient cause for visceral contusion. I have never been sorry that I opened such an abdomen. I have thrice advised it in cases of doubt when fatal peritonitis has ensued after two or three days of useless waiting and watching. Let me briefly detail one of these cases:

An able bodied man was felled by a rapidly moving horse and two wheels of a moderately heavy wagon passed over his upper abdomen. The physician in charge immediately summoned another surgeon and myself to confer with him, as the man showed alarming shock. By the time we reached his bedside a reassuring reaction had supervened, and aside from a "sore feeling" over his liver he was comparatively free from pain one hour after injury. The pulse was 90 and of fair quality. The extremities were cold, the face slightly pale, and the right rectus muscle was somewhat rigid. He did not look very sick. Abdominal exploration was urged. My two colleagues firmly stood for conservatism. The autopsy three days later revealed a small rupture of the duodenum and a moderate rupture of the liver.

If in these cases we wait for sufficient signs or symptoms (which mean peritonitis) to warrant laparotomy, *we lose our one opportunity* in the great majority of instances. Aseptic exploration is safe in 99.5 per cent. of the cases. I have never seen a case perish from simple abdominal exploration. The anesthetic is the greatest menace to safety and the chances of death from this cause are about one in one hundred thousand.

A peculiarly distressing case from my service at the Methodist Episcopal Hospital, in May, 1909, illustrates more than one principle in the surgery of abdominal contusions:

G. L., aged 30, was hit by a flying block of wood hurled from a rapidly revolving circular saw, the blow falling upon the umbilical region. The force of the blow, or the shock therefrom, caused him to fall, but after a few minutes he was able to sit up and was in this position when the ambulance surgeon arrived. He complained of pain in the epigastrium which did not seem excessive. I happened to be in the hospital when he was reported and examined him immediately. He was suffering from moderate shock. His pulse was 96, small and soft. Respiration 26 and shallow. The face was pale, extremities slightly cool, and the pain had increased somewhat. He had not vomited. There was no point of localized tenderness, although he winced slightly when pressure was applied at any point over the upper abdomen. There was no muscular rigidity and no marked contusion evident. One of my colleagues advised watching him for a day or two, but I resolved to adhere to my usual rule in such cases and explore the abdomen, to which procedure the patient consented.

Stimulation and external heat were ordered and two hours later I returned to the hospital intending to perform abdominal section. In the meantime the pain had increased and one-sixth of a grain of morphine sulphate had been administered hypodermatically. By this means his pain had been so completely relieved that he refused operation, notwithstanding elaborate explanations and urgent reasoning. During the night his pain increased and in the morning he requested operation, which was promptly performed. The peritoneal cavity was soiled with fluid feces, and a general peritonitis was in progress. A rupture of the ileum two-third of an inch in diameter was closed with a purse string and reinforcing Lembert sutures and the abdomen was thoroughly irrigated and drained. Fowler position and the ice coil were used as the general measures in the after-treatment and generous stimulation was exhibited hypodermatically. The man died from his peritonitis on the third day succeeding operation.

Never have I seen a more tragic illustration of the disadvantage of the use of a pre-operative dose of morphine in urgent abdominal troubles. It always masks symptoms. Here it so deceived an ignorant patient as to cost him an excellent chance for his life. The only reasons for determining upon operation in this case were the type of injury, which was sufficient to cause serious subparietal damage, and the general impression created by the appearance of the patient.

CONTUSIONS OF THE APPENDIX.

Traumatic appendicitis occurs occasionally as the result of contusion of the abdomen. For a long time this was questioned by eminent surgeons. Enough cases are on record, however, at this time, to establish this type of appendicitis as a clinical entity. Personally, I have observed but two instances in which undoubted blame could be attached to injury. Warbasse, in a classical essay, on this subject, read before the Brooklyn Surgical Society, March, 1908, summed up the subject in these words: "There is every reason to regard traumatism as an etiological factor in appendicitis." But he also says, "Cases cannot be cited as examples of traumatism producing appendicitis, for in none of them can we say positively that the trauma was the etiological factor." That we cannot offer positive proof in any case save where a serious damage is done to the immediate neighboring viscera, is granted. On the other hand, in an occasional case we can feel satisfied from the history and the course of clinical events that the trauma has been the cause.

In my first case the patient was injured by a packing box, falling from the top of a pile six feet in height, striking him on the right side of the abdomen. His abdominal wall was somewhat sore for three days, then a chill supervened, followed by all of the signs of a severe attack of appendicitis. I saw him five days later, evacuated an abscess, and removed a suppurating appendix. The cecum at the base of the appendix was suspiciously thick and soft. A fecal fistula developed which closed in four weeks. Complete recovery followed. The second case developed on the day following a fist blow on the abdomen. A gangrenous appendix was removed forty-eight hours after the blow was received. Recovery followed.

CONTUSION OF THE KIDNEY.

Contusion of the kidney is quite common. There may be a comparatively slight bruising with moderate shock and little pain, and thereafter for a few hours or days a hematuria. On the contrary a kidney may be mashed into a jelly-like mass of shreds and small fragments, torn from its attachment at the hilus and a rapidly fatal hemorrhage ensue into the delicate perirenal post-peritoneal tissue, or the peritoneum may be torn and the peritoneal cavity flooded with the hemorrhage. Rarely both kidneys are involved. Injury to the kidney by contusion is almost invariably from direct violence but rupture has been said to occur from indirect violence such as a fall from a considerable height. Undoubtedly many renal ruptures are due to the compression of a kidney between the object committing the violence and the vertebral column. Again, hydraulic pressure being exerted through the blood-vessels and the more or less distended pelvis may be the cause of ruptured kidney when the organ itself is not subjected to direct contusion. (Küster).

It is interesting to study the varieties of laceration of renal tissue occurring in these injuries, as slightly torn capsules, moderate invasion of the cortex, stellate lacerations and tearing and mashing of the entire organ, or laceration of its attachments.

The greatest interest to us, however, is the clinical one and the determination of the method of treatment. Hematuria is present in about 90 per cent. of the cases, varying in degree. The bladder sometimes becomes filled with clots. Typical renal colic may be caused by blood clots in the ureter. Hematuria may be transitory or continue for weeks or months. Pain, always present, is variable in intensity and may be definitely localized or radiate widely. The development of a tumor depends largely upon the amount of blood or urine extravasation. Immediate shock is almost invariable, although in many cases physical exertion indulged in by the patient for some minutes or hours after a contusion of the kidney has often been remarked.

The result in cases conservatively treated may be:

1. Resolution with slightly disappearing albuminuria.
2. Hydronephrosis.
3. Aneurism of one of the renal arteries, or one of their branches.
4. Perinephritic abscess.
5. Multiple small abscesses in the renal substances.
6. Suppuration of the broken down kidney due to latent or active gonorrheal infection.

The primary and immediate dangers are hemorrhage and anuria due to shock to the governing secretory centers.

The immediate radical treatment of renal contusion has usually depended upon the presence of symptoms of severe hemorrhage. When hematuria is at all profuse, the pulse increasing in rapidity and the classical symptoms of hemorrhage apparent, no hesitation should be felt in undertaking an immediate exploration. In addition to this we may have, as guides, a rapidly increasing tumefaction and extensive tenderness with rigidity of the corresponding abdominal muscles. In cases with symptoms less urgent than these, nephrotomy under aseptic conditions is safer than conservative waiting in all cases where we are at all doubtful as to the extent of the injury.

An extensive review of cases leads to the conclusion that under conservatism the mortality is about 30 per cent., whereas in those treated by consistent radicalism, excluding cases of slight contusion, the mortality is about 6½ per cent. Where nephrectomy is required, the mortality is about 22 per cent. In secondary nephrectomies, Keen has demonstrated a greatly increased mortality. Upon exposing the kidney we may find the suture of the lacerations possible after clearing away the hematocele, but if this is done, hemostasis must be nearly or quite complete. Where laceration is extensive nephrectomy must be done if the patient's condition permits. Occasionally we must be content with firm gauze packing, but it must be ever borne in mind that to carefully secure the renal vessels in cases of extensive laceration of the kidney is the only reliable cure for the hemorrhage. Partial nephrectomy with suture of the remaining fragments is rarely possible. I have never seen a suitable case.

In instances of comparatively slight contusion the treatment should consist of the usual measures for overcoming shock, cold to the renal region, after firm strapping or bandaging is applied, and opium or morphine to relieve the pain. I have repeatedly used ergotin and adrenalin hypodermatically but it is a matter of doubt as to how much they accomplish in these cases.

CONTUSIONS OF THE PANCREAS.

Contusions of the abdomen rarely cause definite injury to the pancreas save where huge crushing blows damage extensively the contents of the upper portion of the abdominal cavity. Interstitial hemorrhage followed by cyst formation or necrosis usually results.

CONTUSIONS OF THE SPLEEN.

While contusion of the spleen may be mild and the interstitial or intraperitoneal hemorrhage of insignificant proportions in the majority of cases there is extensive laceration and dangerous hemorrhage. Indeed, many of these cases perish from intraabdominal hemorrhage before they can be subjected to operation. In all suspected cases prompt exploration should be done if the symptoms of hemorrhage exist in any degree—remembering that rarely if ever can a positive diagnosis of splenic rupture be made until the abdominal cavity is opened. Suture of the traumatic clefts in the organ is occasionally possible but it may be followed by gangrene, as occurs sometime when a slight rupture is treated expectantly. In most instances it is best to excise the organ.

CONTUSIONS OF THE LIVER.

Contusions of the liver are commonly caused by crushing forces and are not infrequently accompanied by fractures of ribs and ruptures of other viscera. In uncomplicated cases the cardinal early symptoms are those of hemorrhage more or less modified by signs of shock. The immediate symptoms, therefore, depend entirely upon the extent of the lacerations of the liver and the freedom with which blood can flow from thse lacerations into the general peritoneal cavity. I have seen lacerations

of considerable proportions bleed rather slowly because of the close apposition of the walls of the wound. On the other hand, a small laceration may bleed copiously. In general, however, we may expect profuse bleeding from nearly all but the minute ruptures of liver. Of great importance is it to recall that biliary leakage is likely to take place from even minute ruptures and a localized or general peritonitis result therefrom.

Abdominal section is indicated in all determined and suspected cases. The lacerations may be sutured (usually with difficulty) or packed with gauze. Large clefts may best be packed with gauze and deep absorbable sutures introduced so as to hold the walls of the wound firmly against the packing.

Prompt section in liver ruptures has reduced the mortality from 80 per cent. to 40 per cent.

Ruptures of the gall bladder alone are said to occur. The literature of the past five years furnishes no case. The gall-bladder has occasionally been ruptured in extensive injuries involving the liver.

RUPTURE OF THE URINARY BLADDER.

This occurs when sharp blows over the hypogastrium contuse a distended viscus, when crushing injuries fracture or dislocate the pelvic framework, and rarely in the jarring due to falls or "bumps" in the seated position. The more or less bloody urine, the empty bladder after hours of continence, the inability to recover water injected by catheter, and the signs of free fluid in the peritoneal cavity, singly or combined, usually lead to an easy and accurate diagnosis. Rarely the diagnosis may be difficult. Here again if we even suspect visceral rupture exploration is wise. The rent may open into the peritoneal cavity, into the prevesical areolar tissue, or into the pelvic floor. Suture, with suprapubic or perineal drainage or both, is indicated. My last case of this injury illustrates how gross may be the neglect in the treatment of abdominal contusions even in this period of scientific enlightenment.

H. J., aged 59, was kicked by a horse, the blow falling upon the lower abdomen. Thereafter he walked to his home, a distance of one-half mile. He was visited by a physician who felt of his pulse, gave him a hypodermic injection of morphine and told him that he would be all right on the following day. Another physician was called on the following evening because of the increasing pain. He repeated the performance of the first doctor. On the third evening a third medical gentleman was summoned, who followed faithfully the example of his predecessors. On the fourth evening Dr. C. W. Berry, who had not seen the patient previously, diagnosed a general peritonitis and requested me to see the patient. Abdominal incision revealed a small rupture of the bladder into the peritoneal cavity and a rupture of the ileum. This was of special interest because, 1. The patient voided urine voluntarily and copiously and at the time of our examination the urine contained no blood macroscopically or microscopically. 2. Good bowel evacuations were obtained by an enema given by Dr. Berry while he awaited my coming. The patient did not survive.

Although the ruptures of various organs have been described separately the frequency of multiple ruptures should always be borne in mind.

It may be well also to mention the rare results of abdominal contusions sch as rupture of the diaphragm with or without hernial protrusion into the pleural cavity, herniated spleen, rupture of the inferior vena cava or the abdominal aorta, and retroperitoneal hematoma which may result in abscess formation.

PENETRATING WOUNDS OF THE ABDOMEN.

These are caused by bullets or by some more or less sharp instrument, missile, or object with which the injured person is struck, such as knives, daggers, sharp sticks, shafts of vehicles, fence pickets, horns of animals, fragments of glass, etc. Whether or not one of the viscera is injured by such a wound depends upon: first, the type of instrument, its shape and size; second, the velocity with which it strikes; third, the extent of surface presented by the viscus; fourth, the distension of the viscus, fifth, its mobility.

Gunshot wounds form the most serious class of penetrating wounds of the abdomen, the mortality being more than double that of stab wounds (about 65 per cent. as compared with 23 per cent.). One reason for this is the frequency with which more than one of the viscera or more than one coil of intestine is perforated. Another is the infection of the peritoneum by septic material carried within by round or conical leaden bullets causing excessive lacerations. The modern bullets of the armies are practically aseptic agents of perforation, which accounts in a measure for the lowered mortality of abdominal penetrating wounds in recent wars. From 80 to 95 per cent. of bullet wounds of the abdomen penetrate one or more of the viscera, although cases are on record in which bullets have traversed the entire abdomen antero-posteriorly without injuring any viscus. Approximately 90 per cent. of these wounds involve the alimentary tract. The greatest damage to the viscera is accomplished by a bullet in traveling through the abdominal cavity transversely or obliquely. Obliquity may also cause visceral wounds much larger than would be expected if the size of the bullet is considered.

The stomach is frequently involved in bullet

wounds, probably because of a poor aim at the heart, or on account of the movement of the victim during the brief interval between the aiming and the firing of the weapon. The gastric mucous membrane is more likely to prolapse into the perforation and to form a valve-like protection for the peritoneum than is that of the intestine.

Formerly the results of conservatism in the treatment of bullet wounds of the upper abdomen was attended with surprisingly good results, although operative treatment has greatly improved our statistics. The protecting valve of mucous membrane, the comparatively mild chemical and bacterial irritation of stomach contents, and the excellent opportunity for the formation of protective adhesions have been cited as the reasons for this.

The possibilities of penetration of the thoracic duct or receptaculum chyli must be remembered in this class of cases. Perhaps the most notable example of this involvement was in the case of the late President Garfield.

We should not be deceived by the location of the wound of entrance in considering a bullet wound. The position of the enemy, the attitude of the victim, and the relation of the wound of exit (if such exists) to the wound of entrance, may prove to be valuable data. When a bullet enters the thorax, as high as the fifth or sixth intercostal space, it may enter the abdominal cavity and penetrate a viscus therein contained.

Lack of military experience forbids my passing judgment upon the method of treatment to be applied to the bullet wounds in the abdomen occurring in modern warfare. In civil life, however, there seems to be no question regarding the advisability of immediately exploring every bullet wound in the abdomen if aseptic surroundings and reasonable skill are obtainable; first, immediate exploration of the wound by incision, *not by probing*, of every wound to determine whether it penetrates the peritoneal cavity; then, if it does penetrate, thorough examination of the abdominal viscera and the repair of all visceral wounds accompanied by the most assiduous cleansing of the soiled peritoneum.

If the stomach or intestine is involved, there will usually be found wounds of both walls, an afferent and an efferent one. Commonly also there will be found perforations of several intestinal coils, and it is important to make a careful search of the entire alimentary tract in every case. The course of the bullet through the abdominal cavity may be exceedingly irregular and circuitous. The wounds should be closed by catgut, silk, or linen sutures, after careful trimming of the ragged or discolored edges. Small rents may be closed by a purse-string suture. Larger ones require one of the other methods of suture as the purse-string will narrow the lumen of the gut to a dangerous extent. This point must always be considered in closing intestinal wounds. I always reinforce my primary suture by a secondary Lembert stitch. Excision of segments of intestine is rarely called for except in the case of more or less extensive injury to the mesentery and in those cases where multiple perforations are close together.

Wounds of the stomach involve both walls in nearly all cases unless the bullet lodges in the organ. The exploration of both walls is therefore of the greatest importance, especially as contamination of the lesser peritoneal cavity is likely to give rise to grave sepsis. Where this is feared the posterior as well as the anterior drainage is required. Wounds of the posterior wall nearing the cardiac orifice may be very difficult of access. When treating a bullet wound of the stomach we should always recall the great likelihood of complicating injuries to the great vessels, the thoracic duct, the pancreas, the gall-bladder, as well as the more usual wounds in liver, spleen, intestines.

M. D., female, 18 years of age, admitted to the Methodist Episcopal Hospital, in June, 1909. She was wounded by a 32 caliber bullet, fired at close range, within a small room. When admitted she was conscious—in slight shock. The abdomen presented a bullet wound one inch above the level of the umbilicus at the outer border of the left rectus. There was moderate general rigidity and tenderness over the left upper abdomen; no mass was felt. A five inch incision was made over the left rectus just internal to the entrance of the bullet. Anterior and posterior perforations of the stomach were found. From one of these leakage was taking place. The posterior wall was closed by prolapsed mucous membrame. The edges of these wounds were trimmed and sutured by purse-strings of Pagenstecher's linen and reinforced with Lembert sutures. A gauze drain was led to the posterior wound. No other visceral wounds were found. About ten ounces of blood and other fluids were removed from the periteneal cavity. The bullet had made its exit from the abdomen through an opening in the posterior parietal peritoneum about one inch below the lower extremity of the left kidney. Post-operative treatment consisted in the Fowler position, ice coil to the abdomen, and saline and coffee enemata at four hour intervals. She was allowed one dose of morphine sulphate and one of codeine hypodermatically. A temperature of 102° F. was recorded 18 hours after operation. Thereafter she made a most uneventful recovery with primary healing of the wound, and left the hospital in excellent condition 19 days after her admission.

Wounds of the liver, spleen, or kidney, cause variable amounts of hemorrhage, corresponding to the location and extent of the injury. In these organs we frequently see the so-called explosive action of bullets. Sutures or packing are required and under some circumstances splenectomy or nephrectomy. Wounds of these organs occur most

commonly in cases where other viscera are also injured. Bullet wounds of the pancreas are usually fatal.

Stab wounds of the abdomen are much less dangerous than bullet wounds. In approximately one-half of the cases the viscera are not injured, and yet in these cases we often cannot learn of the existence or non-existence of visceral damage from the symptoms and physical signs. My most recent case admitted no possible doubt as to the proper course of treatment.

G. P., 28 years old, was the victim of five stab wounds, one of the scalp, one of the left subphrenic region, one in the thigh, one in the thenar eminence of one hand, and the other in the right iliac region of the abdominal surface. His abdominal wound was apparently most important, for from it protruded six inches of small intestine. We proceeded immediately to perform an abdominal section and reduced the knuckle of the ileum and explore for perforation of the gut. The condition found was rather curious. The wound had ripped the skin for two and one-half inches; the peritoneum and muscularis of the intestine were wounded for three-fourths of an inch, and there was a wound in the mesentery of one and a half inches. These were easily sutured. The coil of intestine was cleansed with sponges wrung out of saline solution and the entire peritoneal cavity was thoroughly irrigated with saline solution, before the wound was closed. The parietal wound suppurated; otherwise recovery was uneventful. No signs of peritoneal inflammation developed.

Impaling accidents often cause most extensive visceral injury and rapidly fatal hemorrhage. The sharp object upon which the patient falls may enter anteriorly, latterly or through the perineum. There seems to be no limit to the damage which may be created by such injuries and, *per contra*, the most astonishing escapes with only parietal lacerations are numerous in the literature. If there are evidences of visceral injury the most searching examination of the viscera through an extensive incision is indicated.

The peritoneal cavity may be penetrated by foreign bodies within any of the hollow viscera. Examples of such perforating wounds are those caused by undigested foods, fish bones, pins, tooth picks, bristles, splinters of wood, needles, jackstones, etc.

An extraordinary example of perforation from within the intestine occurred in my service at the Methodist Episcopal Hospital, in July, 1909.

A man of 21 exhibited the symptoms and physical signs of partial intestinal obstruction. On opening the abdomen I found that the obstruction was caused by a recent adhesion. Upon releasing the constricted coil from the grasp of the adhesion, a tiny perforation was disclosed from which was plucked a firm sharp object resembling a wooden splinter ⅞ of an inch in length. After completing the operation we found that the "splinter" was a tightly rolled section of apple skin.

When symptoms of peritoneal irritations are associated with a history of recent ingestion of a foreign body, the radiographer will often assist in forming our diagnosis.

In considering the perforation of the hollow viscera from within mention should be made of the passage of instruments or other foreign bodies through the walls of the stomach, rectum, bladder and uterus. Immediate laparotomy is indicated in all cases.

In conclusion permit me to emphasize some of the important points in the surgical treatment of abdominal injuries. If exploration has been planned we should,

1. Apply active measures to overcome or lessen shock, unless signs of active hemorrhage make quick action imperative. A reasonable time (one-half to three hours) may be allowed in cases of profound shock, to promote a helpful reaction.

2. Cleanse the skin as thoroughly and as widely as in any other abdominal case, notwithstanding the presence of indication for rapid work.

3. Precede an exploration by an intravenous saline infusion or a transfusion of blood when symptoms of hemorrhage are marked. As Crile has noted, "We may in this way transform a hopeless case into an average risk."

4. Make the search for intraabdominal injuries thorough and systematic.

5. Cleanse the peritoneum thoroughly of septic material and blood, or fluid of any kind. This is best done by large gauze sponges, followed by copious irrigation, leaving the abdomen partly filled with saline solution.

6. Secure absolute hemostasis and water-tight repairs of all wounds and ruptures.

7. Introduce drains whenever viscera have been penetrated or ruptured.

8. Use intravenous infusions of normal saline solution infusions freely post-operatively in cases of marked shock or acute anemia.

9. Adopt the Fowler position and the ice coil in all cases as soon as reaction from shock is obtained.

10. If intestinal paresis supervenes, lavage every four hours will accomplish more than enemata. I can record a recent recovery from intestinal paresis so extreme as to be accompanied by frequent fecal vomiting, by the use of this measure.

Finally let me again urge an immediate aseptic abdominal section in every doubtful case of abdominal injury. Reckless conservatism should pass into history.

280 PARK PLACE.

THE MEDICO-LEGAL ASPECTS OF THE RONTGEN RAYS FROM THE STANDPOINT OF THE SURGEON.*

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OMAHA.

It is now nearly fifteen years since the so-called *X*-rays were discovered by Röntgen, of Germany. The world was startled by the announcement that a new force had been found which enabled one to see certain organs and parts of the body that in the past had been beyond the reach of human vision. This was one of the most wonderful discoveries ever made, and was the means of placing surgery on a higher plane than it had ever before reached.

As is usually the case when a new method of treatment has been announced which seems to hold out great promise of being better than those already known, it was seized upon by the profession as a cure-all and more was expected of it than the facts justified. The real uses to which it could be put were unknown, the dangers which lurked within it were not appreciated, and several martyrs to the cause of science gave up their lives in an effort to bring to light the truths hidden in this mysterious agent so powerful, not only for good, but also for evil. The profession reveres the memory of these men and acknowledges a lasting debt of gratitude to them.

Not only was the medical profession at a loss as to the exact status in which to place the *X*-rays, but the courts were equally bewildered. Here was a new witness to be reckoned with, with no precedents to guide and no one who knew whether the shadowy, ghost-like image could be relied upon or whether it was some trick of the imagination.

It has taken time to straighten out these things, but now both the medical and the legal professions know that the skiagraphy as one means of arriving at a correct diagnosis and recording what it reveals so that it may be shown to a jury, has established itself on a firm foundation; and all courts recognize it as being competent evidence when properly supported by the testimony of one expert in radiography. The picture alone is not evidence at all, but when presented as an aid to, or as part of the oral testimony of him who produced it or knows of its production, it at once becomes valuable evidence.

"We must remember, then, that a document, purporting to be a map, picture, radiograph, or diagram, is, for evidential purposes, *simply nothing* except so far as it has a *human being's credit to support it.* It is mere waste paper, a testimonial nonentity. It speaks to us no more than a stick or stone. It can of itself tell us no more of the existence of the thing portrayed upon it than can a tree or an ox. We must somehow put a testimonial human being behind it (as it were) before it can be treated as having any testimonial standing in court. It is somebody's testimony, or it is nothing. . . .

"It is immaterial whose hand prepared the thing, provided it is presented to the tribunal by a competent witness as a representation of his knowledge.

"The objection that a photograph or radiograph may be so made as to misrepresent the object is generally directed against its testimonial soundness, but it is of no validity. It is true that a photograph or radiograph can be deliberately so taken as to convey the most false impression of the object. But so can any witness lie in his words. A photograph can falsify just as much and no more than the human being who takes it or verifies it.

"The fallacy of the argument occurs in assuming that the photograph can come in testimonially without a competent person's oath to support it. If a qualified observer is found to say, 'This photograph represents the fact as *I* saw it,' there is no more reason to exclude it than if he had said, 'The following words represent the fact as I saw it,' which is always, in effect, the tenor of a witness' oath. If no witness has thus attached his credit to the photograph then it should not come in at all, any more than an anonymous letter should be received as testimony."

As far as I am able to learn the courts have made no ruling whether or not a surgeon can be held liable for the failure to use the Röntgen rays in case of fracture, dislocations, foreign bodies, etc., followed by bad results. The law clearly says that physicians and surgeons when called upon to treat a case are supposed to be possessed of the reasonable and ordinary qualifications of their profession. The question that then arises is what constitutes reasonable and ordinary care, skill and diligence. It is generally construed to be the care, skill and diligence possessed by the majority of the members of the same profession among whom he may practice. "The law does not expect a physician or other professional person engaged in the practice of the medical science who practices in a sparcely settled district, such as a village or small

* This paper was submitted for criticism to Attorney Frank Crawford, who passed upon all the legal points mentioned.

town, to exercise the same care and skill as would be expected of one residing in a large city where the opportunities of keeping fully alive to the latest methods and appliances are greater. Such persons are only bound to exercise the average degree of skill possessed by the profession in such places generally. A patient who had been improperly treated, as a result of the neglect of the medical attendant to employ the most modern method of practice, could very properly bring charges of neglect against the attendant, who, however honest in his methods of treatment, would be liable if his patient suffered injury to his person."

"The use of the *X*-rays is so universally commended in the modern works on surgery and medicine that the surgeon who fails to apply them in doubtful cases may justly be accused of negligent practice."

"Liability for bad results may result from either active or passive acts on the part of the attendant. That is, he may have done things that he should not have done and that are contrary to the usual custom of the profession in which he resides, or he may leave undone things that he should have done, which would have greatly assisted him in his diagnosis or treatment. While the law may not require a medical man to make use of modern scientific instruments of precision, such as the *X*-ray, the microscope, etc., yet it is the general concensus of opinion that he should do so when he is practicing in a community where these things are readily attainable. It (malpractice) is active when a certain course of treatment is adopted and followed which is not sustained by authority. It is passive when those things in the treatment are omitted which should have been done, in order to obtain a result approximating perfection, "It might be argued from this that every physician would be required to have all the latest improved equipment, including many delicate and expensive instruments, but this would not necessarily follow as he would be expected only to make use of these things in difficult or doubtful cases, and if it could be shown that he requested the patient to be allowed to call to his assistance other members of the profession who are expert along certain lines and the request was refused because of the expense or otherwise, the surgeon's duty has been performed and his liability ceases. "If a patient by refusing to adopt the remedies or comply with the directions of the physician, frustrates or defeats the endeavor of the physicians, or if he aggravates the case by his misconduct, he cannot charge to the physician the consequences due distinctly to himself."

In the case of *X*-ray burns the courts hold the physician liable to the same extent that they do in case of any other accident which may be the cause of injury. In this as in all other work that the surgeon may be called upon to do there may be some unforeseen condition, as an idiosyncracy on the part of the patient, or the fact that he may have been recently treated with the *X*-rays by some other operator without making known the fact, or many other things which might produce a burn through no fault of the operator. All these things should be considered in advance and the patient given to understand the possibilities of accident, so far as this can be done without causing unnecessary fear. Even if the physician does not take the patient into his confidence to the fullest extent, if it can be shown that he used ordinary skill such as might be expected of a competent radiographer, he cannot be held liable. Most of the severe burns that occurred before we knew of the action of the rays were due to prolonged or repeated exposures. It was not uncommon to make an exposure lasting an hour and, should the negative not prove satisfactory, to repeat the performance a day or two later. All this is done away with now, as it is scarcely ever necessary to make an exposure longer than one minute, and the average time will probably not exceed fifteen seconds. With the improved apparatus now to be had an *X*-ray burn is not apt to occur in any examination for diagnostic purposes, but, should there be one the operator is more likely to be held liable than in the earlier days of this work when poor apparatus was used and little was known of the destructive action of this agent. In using the rays for therapeutic purposes, it is often necessary to provoke a mild dermatitis and in desperate cases, where radical measures must be taken if any result is to be expected, the operator is justified in provoking considerable reaction. However, the patient should be informed or his near relatives or friends should be informed, in advance as to the probable result.

When a radiographer is called into court, he should prepare himself in advance by a careful study of the parts so that he may know not only the pathology involved, and he should refresh his memory of the normal anatomy, physiology, and function. He should take as many negatives from as many different points of view as may be necessary to get a clear understanding of the alleged or suspected injury.

It is often best to make each negative in duplicate by placing one plate above the other so that should one be spoiled in developing, or broken, there would still be a good one. Both the plate and the print should be taken into court, as either or both are admissible evidence if properly explained. The plates should be marked in some way so they may be identified. This is best done by the use of lead figures which correspond with a card index kept for this purpose. Lead letters may also be used to indicate the parts, as R, right, L, left, P, posterior, A, anterior, I, interior, E exterior. The witness should be able to explain in plain simple language the action of the rays and the method of taking a negative, trying always to use words that will be understood by the jury.

Should the attorney ask technical questions with a view of confusing the witness it is better for him to reply that he does not know, rather than to become tangled in a meaningless explanation which is purposely done to make an impression on the jury. If one confines himself to facts and answers technical questions in the simplest possible way he will have but little trouble. A question likely to be asked is "Does a radiograph always show everything exactly as it exists?" If one answers "yes," he may easily get into deep water, for, of course, if not properly taken the picture may not show the parts as they really are at all. The object seen on the plates is only the picture of a shadow and if one experiments a little, by throwing the shadow of an object on a white wall by varying its relation to the light from which the shadow comes it will be seen how easy it is to produce a distorted picture; and again, the picture does not show the condition of the soft parts about the bone at all. Another question often asked is, "Does a radiograph always show a fracture if one is present?" I believe that it does, if properly taken. While it may not show from a certain angle because there is no misplacement and the fragments are overlapped so as to obscure the line of fracture, if another exposure is taken at right angles to the first one the fracture will invariably be seen, provided, of course, the picture is properly taken.

"Does callus formation show in a radiograph?" Kassabian says that it does after the sixteenth day. This, I think, will vary somewhat with the parts broken, the age of the patient and the exactness with which the fragments were replaced. It is impossible to adjust a broken bone so that it is exactly in the position that it was before being broken, and for this reason callus usually shows about the site of a fracture.

The question is often asked, whether or not a certain bad result in fractures or dislocations might not have been avoided. This question is really not one that comes within the province of the radiologist, but is purely a surgical one. The office of him who takes the picture is to show the conditions as they exist and not to suggest treatment, or state what past treatment should have been. It is his place to "turn on the light" and he is not "responsible for what the light shows."

The Röntgen rays have several times in my experience been the means of settling damage suits and accident claims by showing that a fracture either did, or did not, exist. Many times fractures of small bones occur with none of the classical symptoms present, such as crepitus, deformity, loss of function, etc., and while the injured party may believe that the bone is broken and base thereon a claim for damage, the insurance company or corporation may deny that any fracture exists and refuse to make payment. If, however, a radiograph is taken and a fracture shown, settlement will almost invariably be made out of court. If the insurance company or corporation can be shown that the injured party has really received a fracture, they would much prefer to settle rather then allow the matter to go before a jury, provided of course it is an injury for which they are liable.

As showing the influence that an *X*-ray picture will have on a jury the following clipped from a Kansas City paper is interesting. The paper stated that the *X*-ray pictures won the case. I might add that they would have been equally valuable for the defendent had they shown no injury.

"*X*-ray photographs were offered as evidence yesterday in the Wyandotte County District Court in a damage suit against the Metropolitan Street Railway Company, brought by Mrs. Angie B. Brown, of 272 South Ferree street, Kansas City, Kansas. She was passenger on a Grandview car which split a switch at Riverview station, throwing her from her seat and injuring her spine. W. G. Holt, her attorney, produced the photographs, showing the jury the nature of her injuries. Mrs. Brown was given a verdict for $2,000."

The following cases will show clearly how a radiograph may at once clear up the disputed point so that a settlement may be made without the intervention of the courts.

Plate 516-R. Patient struck by street car and claimed damages because of fracture of bones of wrist. A radiograph showed no fracture present and company refused settlement. No further action taken.

Plate 515-L. Patient injured in railroad acci-

dent. Struck on shoulder. Treated for fracture of clavicle with bad result. Several months later a radiograph showed clavicle ends overlapping at point of fracture, with considerable shortening. An operation was done in which the bone ends were wired together with good result. Although the company had settled with this man and had his receipt in full for all damage claims, upon seeing the radiograph they paid him $100 in cash and all expense of operation.

Plate 514-R. Patient hurt by running in front of street car which struck him about midway between knee and ankle. Claimed fracture of fibula which company denied. Radiograph plainly shows fracture. Case still pending, for company denies liability. This case shows how fracture of the fibula may be overlooked for it was impossible to recognize the injury by other methods of diagnosis.

Plate 511-L. This patient was injured in an accident as teamster. His physician thought there was a fracture of the lower end of the radius. Accident insurance company sent its examiner to see him. He thought there was only an injury to the soft parts. A radiograph shows fracture transversely, across the lower end of bone and one running from this into the joint. The company did not hesitate to pay the claim in full upon seeing the radiograph.

In closing I wish to repeat the words of Judge Lefevere as quoted by Kassabian. "During the last decade at least, no science has made such mighty strides forward as surgery. It is eminently a scientific profession, alike interesting to the learned and the unlearned. It makes use of all science and learning. It has been of inestimable value to mankind. It must not be said of the law that it is wedded to precedent, that it will not lend a helping hand. Rather let the courts throw open the door to all well considered discoveries. Modern science has made it possible to look beneath the tissues of the human body, and has aided surgery in telling of the hidden mysteries. We believe it to be our duty in this case to be the first, if you please to so consider it, in admitting in evidence a process known and acknowledged as a determinate science"

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MANAGEMENT OF PERITONITIS.

Gastric lavage should be made at once in every patient suffering from any form of peritonitis, except from stomach or duodenal perforation, if nausea or vomiting or gaseous distention is present, no matter what other form of treatment may be contemplated.—A. J. OCHSNER, in *The Boston Medical and Surgical Journal.*

METATARSALGIA.

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The literature of this subject is not easily open to study for it is scattered through many different departments of medical science. Neurological treatises and journals speak of it as a part of their special field; so also do orthopedic works. Other articles are found in general surgical literature. Thus a bibliography of this subject represents an amount of work unsuspected at the outset.

Another obstacle to the systematic study of the recorded cases is the varying standpoints from which the histories are reported. One observer has traumatism so prominently in his mind as the chief causative factor, that his histories record but little except the number of his cases and the number of traumata. Another reports chiefly the static condition of the foot itself and says little of its owner. A third dwells largely on the neuropathic stigmata and tells little of the local condition.

So that when one attempts to tabulate the cases little can be found in common except two facts: (1) All complain of pain in the foot; (2) at least 80 per cent. of all cases are women.

This certainly does not go far toward establishing a symptom-group that can properly be dignified by classification as a disease. And the fact is that many important writers, chiefly among the French and Germans, decline to regard this condition as at all an entity, but class the reported cases as vague neurotic disturbances with no known anatomical basis, or as local manifestations of a gouty or rheumatic diathesis, or as synovitis, periostitis, bursitis, or tenosynovitis, due to direct injury or to some local disease of the bony tissue itself, or to metatarsal subluxation.

To this group of cases, belonging partly to several of the great divisions of medicine, but wholly to none, Dr. T. G. Morton gave a measure of coherence in a series of three papers, the first published in 1876, the second in 1886, the third in 1894. As a recognition of his work on the subject the condition has been since most commonly called "Morton's neuralgia."

After reporting his cases, eleven in number, Morton presented a study of the anatomy of the metatarso-phalangeal joints, showing that the fifth metatarsal is enough shorter than the fourth metatarsal to bring the head of the proximal phalanx of the fifth toe in line with and against the head of the fourth metatarsal. This, combined with the greater

mobility of the fifth metatarsal caused, in certain conditions, the bones to impinge on the articular branches of the plantar nerves which, he said, wound around the joints and were thus especially liable to pressure. In the last of his three papers he presented radiographs showing the positions of the metatarso-phalangeal joints to be as he had stated in his previous papers. He also showed another radiograph of the foot of a patient suffering with this pain, with the fifth and fourth toes greatly deformed and turned toward the median line and with what appeared to him to be an approximation of the fourth and fifth metatarsal bones. This second point seems to me not to be demonstrated by the radiograph as only the phalanges seem to be crowded inward.

The natural and proper treatment, following on such a theory of causation, was excision of the head of the fourth metatarsal to relieve the point of counter-pressure. This Dr. Morton did repeatedly with good results to his patients, but never was there discovered any condition of the removed part or of those left in situ to indicate that pressure had occurred on these bones or that nerve filaments were caught between them.

In recent years it has been shown that the nerve filaments are not so related to the fourth and fifth metatarso-phalangeal joints as to be caught in the way Morton described.

The modern and more rational explanation of this Morton's neuralgia and of other forms of neuralgia originating in the anterior portion of the foot associates them with a weakening of the anterior transverse metatarsal arch. This relationship was first pointed out by Paullosen and later by Roughton, Woodruff and others, but with especial clearness by Goldthwaite, of Boston. He shows the anterior metatarsal arch to be made up of the heads of the five metatarsal bones, the first, fourth and fifth acting together as the base and the second and third being on a higher plane, forming the concavity of the arch. This arch is regularly obliterated by the full weight of the body on the foot, but under normal conditions it returns when the weight is removed because of the natural resiliency of its structure.

If we now examine the symptoms noted in these cases it will at once appear how perfectly this flattened anterior arch explains them.

Whitman gives the symptoms as follows: "Typical cases of Morton's painful affection of the foot are characterized by sudden cramp-like pain in the region of the fourth metatarso-phalangeal articulation. The pain may begin as a burning sensation beneath the toe, as a numb or tingling feeling, as a sudden cramp, or as a peculiar feeling about the articulation that increases in severity until it becomes almost unbearable. At first the pain is confined to the neighborhood of the affected joint, but unless it is relieved it radiates to the extremity of the toe, to the dorsum of the foot, or up the leg. In many instances the onset of the pain is preceded by the sensation of something moving or slipping in the foot; in some cases the pain may be induced by sudden movements, missteps, or long standing, and in practically all the cases the pain is felt only when the shoes are worn. The frequency of the recurrent cramp varies; in some cases it is felt only at infrequent intervals; in others it practically disables the patient. When the cramp habit has been acquired, very slight causes may induce the pain, for example, a thin soled shoe, a hot pavement, "the sticking of the sock to the foot" and the like, but, as has been stated, except in the very advanced and chronic cases, the pain is never felt except when the shoe is worn."

Also there is almost universally an uncontrollable desire to remove the shoe—no matter how public the place or how inconvenient the occasion may be.

The location of the pain varies greatly, as is shown by the following analysis of cases by Whitman. In a total of 108 cases the pain was referred to the fourth metatarso-phalangeal joint in 72; to the third and fourth in 10; to the second, third and fourth in 8. In only 6 was the fourth joint free from pain.

Females are much more prone to the disease than males. In one group of 84 cases, 64 were women, 20 were men. Of Morton's original eleven cases, 10 were women. In another set 24 were women, 4 were men. The average age of all the reported cases I could find in which the age was given was about 30 years.

The disease affects the well-to-do classes almost exclusively. It is almost unheard of in dispensary and hospital practice. There is much variety of opinion as to the frequency with which the condition occurs. It is commonly reported as rare, but orthopedic shoemakers claim that they see thousands of cases which never came under the care of the surgeon at all. The common habit of removing the shoe when the pain comes on is said by them to be the cause of one sufferer becoming acquainted with his companions in misery and sending them direct to the shoemaker where she was relieved. Thus many cases may not be reported at all.

As to the reliability of such statements, I cannot say.

The relation of traumatism to the production of these symptoms is of interest. If we mean by trauma a single short, sharply defined blow or fall or sprain, I should say that, in my judgment at least, it is a rare cause. If we define trauma in a sense broad enough to make it include a prolonged series of malpositions of the foot produced by some faulty mode of walking or by shoes not adapted to a correct distribution of the body weight upon the foot, or by excessive weight of the body itself imposed upon a too slightly formed foot, then it seems to me traumatism may be said to be the most common, perhaps almost the exclusive cause, of the condition.

Whitman illustrates most vividly the method of production of the pain at the fourth metatarsophalangeal joint, caused by crowding a heavily weighted foot into a shoe too narrow for it, thus holding the toes together and preventing the arch springing as it should under the body weight, by a reference to a corresponding position of the hand which we can easily produce for ourselves. If the extended hand is subjected to a lateral squeeze the palmar arch gives readily and little or no discomfort is experienced. If, however, the fingers are dorsiflexed thus fixing the metacarpals and preventing an increase of the arch, pain is experienced which is most severe between the fourth and fifth joints—which is exactly analogous to the typical Morton's neuralgia. If the little finger is crossed over on the back of the ring finger, raising the fifth metacarpal above its own level and pressure is applied the pain is even more pronounced at the fourth joint. Now exactly this the tight, narrow shoe does to the foot. In the narrow shoe the fifth metatarsal is raised so that the outer support of the arch is transferred to the fourth; this is pressed down by the weight upon it and becomes quickly sore from the pressure on the ground—to which it is not accustomed. Also the dorsiflexion of the fingers above described as depressing and fixing the palmar arch is an exact reproduction of the hammer toes so commonly found in the wearers of narrow and pointed shoes.

Rheumatism, gout, a general neurotic and neurasthenic condition, has been frequently stated to be causative factors in the production of these neuralgias. Of course, it is difficult to say with certainty whether cases so reported may not have an undiscovered obliteration of the anterior arch. But as regards the cases occurring in neuropathies is it not at least probable that their weakened and oversensitive nervous systems may respond more easily to a slight irritation located in the foot—a condition so slight that under improved nervous conditions the pain in the metatarsus ceases and thus the patients seem to be cured of a condition of the foot when really their general tone has been improved until the local pain is no longer noticed. We certainly see this occur in other portions of the body —why not here?

Treatment. If we are convinced that the prime causative factor in the production of this pain is the imperfect shoe, then the first indication for relief is to have the shoes correctly made, especial care being taken to have the sole wide enough so that lateral pressure on the arch does not occur and so that the toes can expand and can be freely flexed and extended in walking.

Relief of the pain may be further attained by a bandage applied about the metatarsus in such a manner as to exaggerate the arch. Adhesive straps are even better, but they are dirty and their presence interferes with bathing. Better still is a tight knitted elastic anklet coming well down to the toes.

A metallic plate like a flat foot plate but extending a little more forward and with the anterior edge curved to support the metatarsal arch is also a good mode of treatment. Or a small oval leather pad, 1″x¾″x¼″, with twilled edges, may be strapped under the arch and shifted until the pressure pain is relieved and then fastened inside the sole of the shoe.

After the urgent symptoms are relieved massage and passive motion of the foot is valuable and also some gymnastics to strengthen the nearly useless toes so often found in these cases. Frequently repeated flexion and extension of the toes is of service as the motion of flexion raises the anterior arch.

A thick, sensitive callus is often present under the third or fourth metatarsal. The removal of this and the use of a corrected shoe will some times be all that is necessary in mild cases.

Following is a brief report of a case in my own practice:

Female, 18 years old—large and heavy, of distinct gouty history and of a neurotic type. After a very gay visit where she danced and skated a great deal, she came home complaining of some pain in the left foot. Her family treated her for a few days with antirheumatics until she had an attack so severe that she fainted. When I saw her I found the pain referred to the fourth metatarsal and some tenderness to pressure on the sole of the foot near the head of the bone. I relieved all the trouble by adhesive straps and a pad, and I then had shoes made with a steel plate incorporated. She is perfectly comfortable with these. She can also be very comfortable with the old shoes by having the sole thickened ¼ inch on the in-

ner edge and under the middle of the foot. With these shoes she wears an elastic anklet compressing the arch. This was three months ago and she has been entirely free from pain since the adhesive strips were replaced by the correct shoes and elastic compression.

117 MONTAGUE STREET.

LOCAL ANESTHESIA.

BY ARTHUR E. HERTZLER, M.D.,

KANSAS CITY, MO.

(Continued from the December number.)

VARICOCELE.

Operations for varicocele have for their object the obliteration of the veins of the pampiniform plexus, varicosities of which constitute the prominent objective symptom of the disease. Prominent factors in the symptomatology are the backache and certain psychic disturbances accompanying, preceding or following the paminiform dilatation. Relaxation of the scrotum, which permits the weight of the testicle to tug constantly upon the cord, is responsible in large measure for the backache and perhaps for some of the psychic disturbances. The requirements of the operation in any given case will depend upon the conditions present. Any desired operation may be done with satisfaction under local anesthesia and the technic for the various types of operation will be indicated. These will include resection of the veins, resection of the veins with shortening of the tunica vaginalis through the same incision, and amputation of the scrotum.

Resection of the Veins. Beginning immediately below the base of the scrotum a line is infiltrated in the general direction of the cord (Fig. 1), extending downward 1½ inches. This anesthetizes the cutaneous nerves only, which, it will be remembered, are branches from the solar plexus through the perineal nerves. The scrotal contents are supplied by the nerves accompanying the cord through the inguinal canal and at the point of the operation have divided into branches too fine to be blocked as described for inguinal hernia. Peripheral blocking must therefore be resorted to. This is done by grasping the cord between the thumb and finger at the base of the scrotum and exerting firm pressure (Fig. 2). The needle is passed at the upper end of the line already infiltrated into the tissue imprisoned between the thumb and finger. About 1 cm (15m) are injected at this point. This effectually blocks all the nerves leading to the scrotal contents. The incision is then begun in the line already infiltrated. Branches of the external pubic are severed and should be ligated. The tunica vaginalis is identified and held by forceps. The cord with the enlarged veins is separated from its sheath and all structures identified. The vas with its accompanying artery and several small veins are separated to be preserved. Included with these are a number of nerve filaments. The bundle of veins remaining is then selected for resection. The veins are freed from the vas and its accompanying structures for a distance greater than the amount of tissue to be removed. The upper and lower limits are then tied with catgut and the intervening tissue removed (*a*, Fig. 3.) The

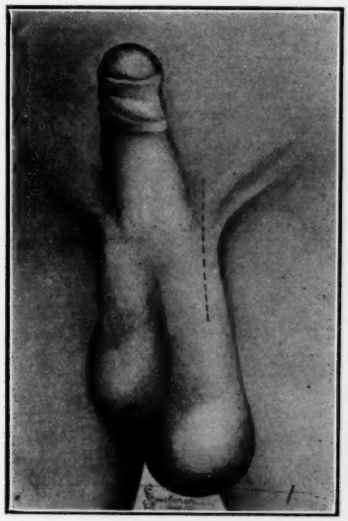

Fig. 1.

severed ends are then united by tying the ends of the ligatures together and additional security is assured by passing supplemental stitches through the stumps. The tunica vaginalis is now closed by a separate line of sutures and the skin closed over it, by either catgut or silk.

Instead of injecting the cord through the unopened skin the cord may be separated after section of the skin and tunica and then grasped between the thumb and finger and injected. This method is more easily accomplished, but the separation of the cord before injection is accompanied by some pain.

Shortening of the Tunica Vaginalis at the Base of the Scrotum. If a support for the testicle is desired at the same time that the veins are being resected this may be accomplished through the same incision through which the vein resection is made. The infiltration of the skin and cord is made as in resection of the veins. The tunica is separated

from the skin for a distance depending upon the degree of shortening of the tunica desired. This having been done, the tunica is clamped with artery forceps at the midpoint of the incision and allowed to remain for purposes of identification. The veins are then resected as before, or if the dilatation is not great and a shortening of the testicular supports alone is regarded as sufficient the shortening of the tunica may be proceded with at once. By making traction on the forceps attached to the tunica the ends of the incision are made to approximate themselves (Fig. 4). The shortening of the tunica is therefore as great as the incision in the tunica. This incision may be lengthened if the shortening is not sufficient. The

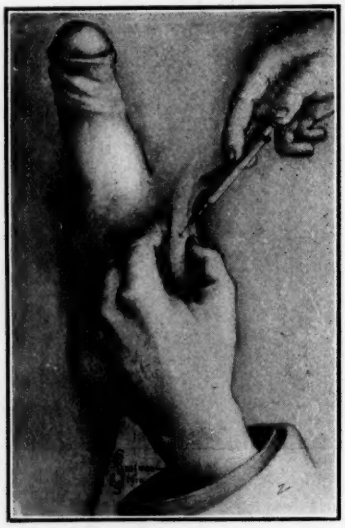

Fig. 2.

points representing the ends of the incision are then united and the incision, which was longitudinal, is united transversely with the rounding of the corners sufficiently to make the newly formed sack fit its contents. The skin incision is then united in the longitudinal direction (Fig. 5). The operation has displaced in our hands the amputation of the scrotum and because of its effectiveness and simplicity is much to be preferred.

Amputation of the Scrotum.

The writer no longer amputates the scrotum but since it is the operation almost universally employed, it will be described.

Ordinarily the degree of shortening desired is estimated and the distance determined is clamped off with long bladed forceps. Moynihan's intestinal forceps are excellent for this purpose. The skin below the forceps is then infiltrated with quinine or Schleich No. 2, and the amputation proceeded with, the clamps being still in position. Through and through sutures are then placed and tied.

Since the shortening of the tunica alone is of importance and the removal of the skin incidental and unimportant, the clamps are best avoided because when they are placed, the tunica is apt to retract and the purpose of the operation is defeated. The following method, therefore, is to be recommended as permitting the operator to remove with greater exactness the desired amount of the tunic.

The amount of the scrotum to be amputated is estimated by drawing the redundant portion between the fingers. If the operator doubts his ability to follow the imaginary line so formed

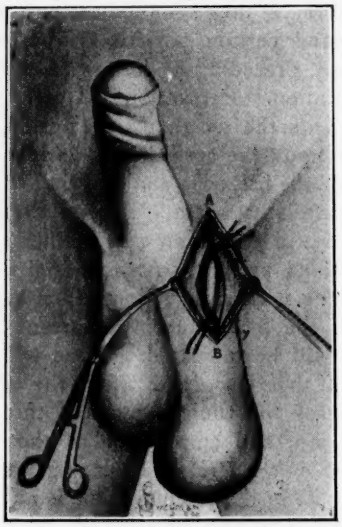

Fig. 3.

it will be well to paint a line with tr. iodine. This line is then quininized about the entire circumference of the scrotum. The skin is then cut through to the tunica with scissors. The tunica is then taken up between the fingers and the amount to be removed estimated by drawing it between the fingers. The hold is retained and the tissue quininized while being held. The portion representing the inter-testicular septum should receive especial attention because nerves are abundant at this point. The excision of the tunica is then completed, care being taken to secure the sac from retraction and any bleeding points are caught up and ligated as they are cut. Careful hemostasis should now be made in order to secure every bleeding point. Otherwise, hemorrhage into the sac will cause embarrassment during convalescence. The two layers of the tunica are opposed with catgut. The skin is then united by separate layers, preferably by non-ab-

sorbable interrupted sutures. Since hemostasis has been accomplished by separate ligatures the skin sutures should be only tight enough to secure apposition of the skin. Care on this point will greatly enhance the convalescence from the operation.

Cuts required:

Estimation of amount to be removed.

Incision of skin. Excision of tunica.

Closure of tunica. Closure of skin.

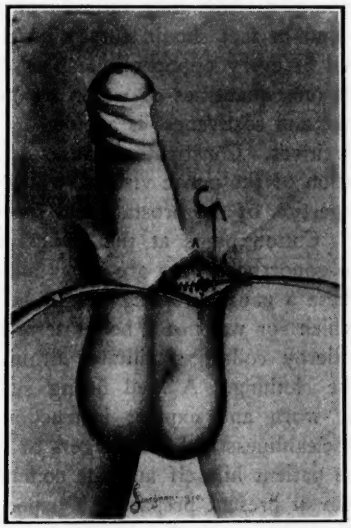

Fig. 4.

III. HYDROCELE.

In the radical operation for hydrocele the same skin infiltration is employed as in the varicocele operation, but it is placed lower, and may be lengthened with advantage. The incision is made through the skin down to the tunica vaginalis. The cord is exposed above the tunica, loosened carefully with the finger and forceps until it can be grasped between the thumb and finger. The injection is then made as in varicocele. The cord may be infiltrated before making the skin incision as in varicocele. With the infiltration of the cord the entire area becomes insensitive and the tunica can be separated with ease and the desired resection made. Care must be taken to make the separation just external to the tunica for if the separation is made between the skin and the dartos pain will result, because the skin of the lower scrotal region is supplied by the perineal nerves, which are unaffected by the quininization of the nerves accompanying the spermatic cord. For the same reason, if it is desired to drain the base of the scrotum, the skin must be anesthetized at the desired point of incision. For the ordinary hydrocele operation a drain is not required. An interrupted non-absorbable suture, after all hemorrhages have been controlled, should be used to close the wound.

IV. CASTRATION.

The removal of the testicle is the simplest scrotal operation to perform under local anesthesia. Since this operation is usually done for malignant disease the question of type of operation to perform must be decided before the question of anesthesia is considered. In tuberculosis if the cord be removed up to the base of the bladder, local

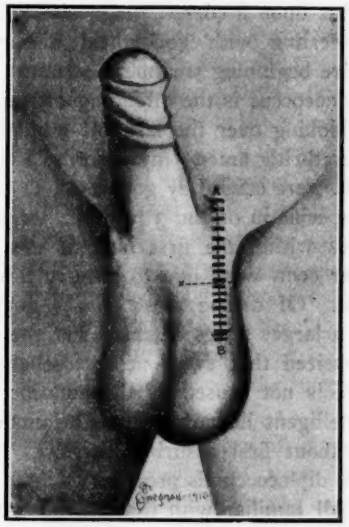

Fig. 5.

anesthesia should not be selected unless there is some contra-indication to general anesthesia.

Removal of the testicles together with the cord well past the internal ring may be performed as follows: the infiltration is made over the base of the scrotum or over the inguinal canal to a point above the internal ring. The cord is exposed through a two or three inch incision, freed and infiltrated as in the varicocele operation. The nerves accompanying the cord are infiltrated as in operations for hernia. If the cord is drawn out through the inguinal ring some pain will be caused. When withdrawn as far as possible the point of ligation should be infiltrated. When no necessity exists for the removal of as much of the cord as is possible, the ligation may be made at the point of original infiltration. The cord should be transfixed with the ligature. If this is not done the retraction of the cord may cause the ligature to slip and annoying hemorrhage may result. The inguinal canal is then closed as in hernia. *(To be continued.)*

TREATMENT OF ACUTE GONORRHEAL URETHRITIS.*

By P. DUNCAN LITTLEJOHN, M.D.,

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Because of the brevity of those few remarks they must necessarily apparently ignore many drugs and forms of treatment that you would naturally expect me to touch upon; so I must beg your indulgence if I seemingly commit the sin of omission, rather than the one of commission in using more than my allotted time.

The treatment of acute urethritis, like every other disease, rests upon a correct diagnosis, and, as we are only dealing with gonorrheal urethritis tonight, before beginning treatment we must be sure that the gonococcus is the offending organism. In hurriedly looking over the last one hundred cases of acute urethritis among my records, I find that 84 per cent. were caused by gonococci, 11 per cent. were non-specific in origin, 3 per cent. were caused by chancres within the first inch of the meatus, while 1 per cent. were due to tuberculosis of the same canal. Of course these figures might vary greatly in a larger series of cases, but the point is well emphasized that every acute discharge from the urethra is not caused by the gonococcus, and that an intelligent line of treatment cannot be instituted without first assuring ourselves that the well-known diplococcus is present.

We are all familiar with the individual who informs us that "Dr. So and So" treated him for a mild gonorrhea several years ago, the attack only lasting a few days or a week. Such a statement is impossible as a rule, for a true infection does not make so rapid a recovery, and what the patient really had was a urethrorrhea or a simple urethritis which underwent a spontaneous cure. For if gonococci are present, no matter how few the symptoms, we are never justified in calling the case a mild one, for like all infectious diseases, serious complications may arise at any hour, changing the whole aspect of the case. Therefore by telling the patient that he has a simple urethritis and not a gonorrhea, the individual is not tempted to make light of any subsequent infection he may acquire, and thus delay proper treatment unnecessarily. Again the treatment of the two diseases differs so widely, that an error in diagnosis is bound to influence the course of the trouble to a very great extent.

Thus having isolated the gonococcus, having made the two glass tests together with the physical findings, and any other observation the case calls for, we are in a position to determine what portion of the urethra is involved, and what the treatment is to be.

The treatment of acute specific anterior urethritis is divided into three parts, viz., hygienic, internal and local.

Hygienic Treatment. The patient's mode of life should be regulated. He must avoid if possible all unnecessary forms of exercise, such as long walks, running, riding, driving, long railroad or automobile trips, and in fact should force himself to sit or lie down at every opportunity. The diet is a very simple one, quantities of water are taken between meals, and costiveness is avoided by the use of saline laxitives. Constipation causes a stasis in the circulation of the pelvic viscera, which in turn invites congestion of the prostate and surrounding structures. Cotton plugs at the meatus and the abominable gonorrhoea bags are never allowed. In place of these a gauze dressing caught behind the prepuce, which for want of a better term is called the "Fauntleroy collar," facilitates drainage and protects the clothing. A well fitting suspensory bandage is worn and explicit instructions given concerning cleanliness and the dangers of infection both to the patient himself and the community at large. I am at present preparing a paper for the State Medical Society dealing with instructions to these patients in which this phase of the subject will be taken up in detail. It is well to immerse the penis in very hot water at least once a day for its antiphlogistic effect, while if balanitis is present these hot water baths should be repeated every few hours.

Internal Treatment of Acute Anterior Urethritis. We should aim to keep the urine in as bland and unirritating a condition as possible while at the same time we strive to make this same fluid a poor culture medium for the bacteria. The first result is accomplished by giving a simple alkaline diuretic for a few days or until the burning on micturition has ceased. For by securing a slight alkalinity of the urine the same becomes soothing to the inflamed mucus membrane, while the increased and frequent urination acts as a mechanical cleanser, washing away the accumulated bacteria and débris.

At the end of the fourth day we are ready to prescribe one of the balsams, which if given properly are soothing to the lining membrane of the urethra, and are somewhat inhibitory to the growth of bacteria, both in the tissues and the urine itself. Of just how much value the balsams are for the lat-

* Read at a meeting of the New Haven Medical Society, February 16, 1910.

ter purpose has never been quite clear to me, but the fact remains that a number of patients receive not a little comfort from their use, while occasionally the disease appears to be markedly checked.

My choice among the balsams has for some time been limited to santal oil alone, for it possesses all the good qualities of the others while its disadvantages are less noticeable. However, santal oil should never be given in larger amounts than ten minims, once in four hours, while its untoward effects, both gastric and renal, must be guarded against.

Of the numerous urinary antiseptics which the last few years have produced, such as hexamethyltetramine, urotropin, helmitol, cystogen, etc., none of them appear to influence the growth of the gonococcus with the same brilliant results that they do in other forms of bacterial invasion. Theoretically they are wrong, for formalin, upon which their activity as antiseptics depends, is only active in an acid medium which it produces, and thus we are defeating our own purpose in prescribing any of these products, since we are striving to keep the urine neutral or slightly alkaline.

Local Treatment. It is, comparatively only a few years that the advocates of local measures have assumed the majority among the profession. For dating from the time of Neisser's discovery it becomes only a question of time before all medical men would agree that this is the only rational form of treatment.

Our forefathers in the profession thought that gonorrhea was a self-limited disease which nature would cure, possibly aided by a little internal medication. Later the belief became prevalent that local measures were of value but should only be used after the subsidence of the acute symptoms. This idea is not only accepted, but is also taught in not a few places to-day, for a number of physicians believe that early local treatment increases the inflammation and thus exaggerates the symptoms. But why delay? In what other form of local inflammation, when pus and bacteria are present, is any delay in vigorous surgical cleanliness advised? Personally I have never seen early local treatment cause harm, but even if the acute irritation does appear to increase, we should not let that deter us from intelligently striving to check the rapid increase of the gonococci. For if we follow an expectant line of treatment, the bacteria not only rapidly multiply and extend backward, but the tissues are exposed to the inroads of numerous other pus organisms. Therefore, local treatment should be begun as soon as the diagnosis is made, the methods and the drugs selected for the same being governed by the existing conditions.

No other diseases that flesh is heir too has been favored with as many so-called "specifics," which in itself proves that the ideal cure is still undiscovered. I propose to mention only two classes of drugs used locally, viz., the silver salts and the astringents. The former are represented by silver nitrate or its well-known derivatives, while the latter are practically confined to zinc and lead. Of the silver nitrate group, the most prominent, and the order in which they have been placed on the market are, argonin, largin, protargol, albargin, argyrol and nargol. Of the first two and the last I had had only a limited experience, and for that reason I will confine my remarks to the use of protargol and argyrol.

The local treatment of anterior urethritis is at present confined to four methods, viz., the hand syringe, Janet irrigations, irrigations with the four-ounce syringe and retro-irrigations with the soft rubber catheter. Each one has its usefulness as well as its disadvantages; it is here that the personal equation of the physician in his choice of methods so largely influences the success of the treatment.

I have believed for a number of years, that the principal reason why cases of acute gonorrhoea differ so much in severity, from the one with the very slight discharge and almost no clinical symptoms to the one where the discharge seems to flow in an almost constant stream accompanied with intense pain, etc., is due largely to a mixed infection or the presence of other pus organisms. I attempted to prove this theory two years ago by a series of culture experiments, but was unsuccessful owing to a lack of proper laboratory facilities. When the time comes that we can cultivate the Neisser diplococci with ease, I am sure that we will find the symptoms of each case of acute gonorrhoea largely governed by the presence or absence of other forms of bacteria. This being so, our treatment can be so modified as to eliminate these other micro-organisms, along with the gonococcus, and thus shorten the duration of the complaint.

Personally in treating the majority of cases I prefer the use of the hand syringe aided in a slight degree by the use of hydrostatic irrigations. I do not allow the patient to use the syringe himself until the later stages of the disease or if in exceptional cases he cannot come to the office daily

for treatment. First very gently irrigating the first two and one-half inches of the urethra, with a hot weak solution of permanganate, I then throw two drams of a ¼ of 1 per cent. solution of protargol into the canal. Care must be exercised not to overdistend the urethra and thus cause a trauma to the mucous lining. The urethra is massaged six or eight times in order to work the fluid back to the triangular ligament, the patient then being asked to hold the meatus closed or an O'Crowley's clamp applied to the same region for fifteen minutes. Thus the fluid is kept in contact with the tissues long enough for it to exert some bactericidal action. Neisser, the sponsor for protargol, recommends beginning strengths much stronger than the above, but patients in this country do not take kindly to them. In ordering protargol always have it prescribed in a dark bottle as exposure to light causes decomposition in a few hours, and the solution becomes very irritating. From day to day the discharge, the urine and the other symptoms are watched for the effect of the treatment. If the discharge increases or the first urine becomes more turbid the strength of the protargol is decreased while if the objective symptoms improve increasing amounts of the drug are employed. After a week or ten days the protargol is changed to a three per cent. solution of argyrol, this in turn being increased in strength up to ten per centum, as the conditions warrant. It is well known that although protargol is the most active bacteriologically of these silver salts, yet it has the tendency to increase the flow of mucous. Again the urethra shortly becomes tolerant of any drug used continuously, hence a change from one to the other is usually beneficial. Argyrol by the way must always be made from the fresh crystals and not dispensed from stock solutions as some druggists have done; for age, not light, causes decomposition, and its efficiency is destroyed as well as making it very irritating.

In the third or four week when the discharge takes on its well known mucoid character we expect the gonococci to have disappeared. When this occurs, microscopically, an astringent is ordered, composed of a grain of lead and zinc to the ounce, plus a little hydrastis and glycerine, the strengths being varied as indicated. The astringent is first alternated with the silver salts, using each twice a day, holding them in the urethra for five minutes at each treatment. The patient now uses the syringe himself, careful instructions having been given him, concerning its correct use and the dangers emphasized that may arise from carelessness. In the fourth or fifth week the silver injections are omitted, and the astringent used twice daily, continuing the same for a week after the urine is free from shreds. The internal remedies can usually be discontinued about the third or fourth week while much more variety is allowed in the diet; but alcohol and coitus are not allowed until at least a month has elapsed after ceasing the injections. Following the cessation of treatment the patient undergoes a thorough examination before a cure is pronounced. The urethra is striped, ramonage is practiced, examination of the prostate, seminal vesicles and adnexia are all investigated for any latent complications. If there is still question about the recovery, the beer test is given or a strong solution of silver nitrate is injected into the urethra causing an acute urethritis, and the resulting discharge searched for gonococci. A negative result being obtained the patient is discharged and allowed to resume his usual mode of living.

But suppose the patient cannot visit the office each day. Minute instructions are given him in the use of the hand syringe, employing the same solutions for injection, four treatments a day, however, are ordered while each injection is held in the urethra for five instead of fifteen minutes; while the individual reports for observation at the office as often as possible.

So much for anterior urethritis. Posterior urethritis, which is so closely related to the above mentioned variety, that some authors claim that where the one exists the other is always present, will tax our efforts towards a complete cure, to a greater degree than the disease just mentioned. In spite of the most careful treatment the infection will at times extend behind the triangular ligament and become posterior in character. The treatment of posterior urethritis is divided into the same heads as the anterior complaint, viz., hygienic, internal and local, the latter term being used advisedly.

ACUTE POSTERIOR URETHRITIS.

Hygienic Treatment. There is no difference from that advised for the anterior form except that the regimen is more strict. An absolute milk diet is insisted upon while rest in bed is required in many cases. The judicious use of hot and cold water is of help at times. The penis is frequently immersed in very hot water for its antiphlogistic effect, while if pain is present then urination is accomplished while the penis is in the hot bath. Sitz baths before retiring make the rest more comfortable, while

if the prostatitis is marked then hot rectal irrigations supplement the thermal baths. On the other hand if chordee is annoying cold cloths are employed after the bladder has been emptied and at times ice is called for. Careful watch is kept of the urine and adnexia for complications which in turn suggests the use of the vaccines. In the use of these preparations in acute anterior urethritis I have had no favorable results, while in the acute posterior infections, out of eight cases, two were moderately benefited. Most of the literature as well as my own experience, express the opinion that the greatest value is derived from vaccine treatment in the sub-acute or chronic infections where there is some absorption of toxins taking place.

Medicinal Treatment. We still aim to keep the urine in as bland a condition as possible, while if there are symptoms of irritation about the vesical neck, the addition of belladonna and hyoscyamus to the alkaline mixture is indicated. During this stage I am partial to a mixture of the balsams composed of santal oil and oleoresing of cubeb, given in a mixture of olive oil containing pepsin and salol, the whole being placed in a soft gelatine capsule. In many cases following the ingestion of this prescription there is a rapid amelioration of the most annoying symptoms. If chordee becomes distressing an antiphrodisiac composed of camphor monobromate and lupulin is given, while at times the use of opium is imperative.

Local Treatment of Acute Posterior Urethritis. When the infection extends behind the triangular ligament, thus causing the second urine to become cloudy, AT ONCE stop all local measures. It is almost universally acknowledged that this is the only safe course to follow. If the general practitioner would remember this fact, many people would be saved the pain and loss of time of an epididymitis, prostatitis, prostatic abscess or other well-known complications. After watching the case for a few days to prove that no complications are occurring, then the question arises, as to whether we shall follow a passive course, trying to relieve symptoms as they arise, or shall we resume local measures in the form of intervesical irrigations?

Several years ago the enthusiasts of the Janet method, calmly shot their strong antiseptic solutions into each and every bladder regardless of the condition of the urethra. Then the thousands of cases of epididymitis began to be taken note of and a halt was called in irrigations for they were blamed for all these complications. Recently, however, the pendulum of opinion has assumed a stand midway between these two extremes, much to the patient's benefit as well as for the physician's piece of mind. To the physician who only occasionally has the opportunity of treating acute posterior urethritis, I say use no local measures whatsoever. But to the man equipped with the proper technique, irrigations, in selected cases, used with gentleness and care are of vast benefit, for they decrease the pain and tenesmus and the course of the disease is markedly shortened. Of the three methods of irrigation, the four-ounce syringe is the best, for the stream is always under the control of the operator, while with care overdistension of the urethra does not occur. The Janet method is harsh while the use of the soft rubber retroirrigation catheter, breaks one of the cardinal rules of genito-urinary practice, viz., never insert an instrument or foreign body into an acutely inflamed urethra. There are a few exceptions where we may be called upon to use the catheter, but its routine use should be frowned upon. Right here allow me to say a word against the use of the medicated bougies in this disease, for more damage than good is usually accomplished, as they not only cause truma of the mucous membrane of the urethra, but also carry infection to healthy areas.

The irrigations with the four-ounce syringe are used once a day by the physician, employing protargol or argyrol in the same strengths as in the anterior trouble. Occasionally the substitution of a weak potassium permanganate or boric acid solution for a few days, proves more soothing than the silver salts, but in the majority of cases the former solutions are more efficacious.

When the tenesmus ceases and the second urine clears we again allow the patient to begin the use of the hand syringe and proceed as in the anterior condition. But when is the patient cured? Alas, the posterior involvement has lengthened the treatment by many a day. If the individual has been so fortunate as to have escaped most of the complications, he has not, because of the location of the disease, escaped some infection of the prostate. This will demand massage of that organ with deep instillations, and possibly other forms of treatment, before the seemingly ever present shreds disappear permanently from the morning urine.

I do not wish to appear pessimistic in my last statement, but to simply emphasize the fact that the cure of a posterior urethritis is necessarily

much more complex and prolonged than the treatment of the anterior affection.

Concluding, I would say that in acute anterior gonorrhoeal urethritis, early local treatment together with internal remedies and supervision of the general health, will usually confine the disease to the penile portion of the urethra, and a cure occurs in from four to six weeks. I have no patience with those heroic measures which claim a cure in ten days' time and are then followed by many recrudesences.

In acute posterior gonorrhoeal urethritis, cessation or the very conservative use of local measures and early recognition of complications is imperative; while the refusal to discharge any of these patients as cured until every trace of the disease has disappeared, will save them as well as many innocent people an unusual amount of suffering.

A SIMPLE METHOD OF REMOVING SEBACEOUS CYSTS.

An incision is made, not over the cyst, but through the healthy skin alongside it, parallel to and the same length as the shortest diameter of the cyst. A small blunt hook is then inserted into the incision and is worked round the cyst, tearing through the adhesions of the cyst wall, first on the superficial aspect, as that is where the cyst wall is thinnest and most liable to burst, and then on the deeper aspect, until the cyst is completely separated, when it can easily be delivered by pressure from above, much in the same way as a cataract is delivered. A dab of collodion on the wound is sufficient dressing.—H. FREETH, in the *British Medical Journal.*

SURGERY IN NERVOUS PATIENTS.

The importance of mental rest, combined with carefully supervised hygiene after operation, including such exercise, massage, etc., as may be advisable or available in each case, is capital; and no greater error could be made than to suppose such a person on the way to recovery merely because the repair of the surgical procedure has progressed favorably to healing, and under no circumstances should they be permitted to resume their ordinary activity until in the judgment of their advisor they have a sufficient nervous balance to enable them to withstand the strains which are unavoidably present on their resuming a normal activity.—L. N. LANEHART in the *Medical Record.*

REPORT OF A CASE OF OSTEITIS DEFORMANS.

NATHANIEL P. RATHBUN, M.D.
BROOKLYN, NEW YORK.

Cases of osteitis deformans are of sufficient rarity (Elsner in January, 1910, was able to collect approximately 100 cases) to make any one case worthy of reporting. The following case seems of some special interest because of the manner in which it was influenced by the use of extract of pituitary gland.

H. H., 68 years of age, stone mason, American. Family history, negative. Personal history: Had a severe attack of grip 15 years ago and was confined to the house six weeks. He had at that time incontinence of urine and considerable pain at micturition; recovery seemed complete. No venereal history.

In February, 1908, there developed rather suddenly a painless swelling of both lower extremities. When examined two weeks later there were found edema of both lower extremities and moderate degree of arterio-sclerosis; heart, lungs, and kidneys negative. Placed in bed on a diuretic mixture. The swelling soon disappeared, but returned on arising, at this time more marked on the right side. When in bed the swelling again subsided readily, but in a few days it reappeared in the right leg associated with diffuse erythema. At that time I suspected the possibility of an incipient elephantiasis. The condition seemed to improve after a short time on rest in bed, but was soon followed by increased swelling and severe pain and exquisite tenderness in the right tibia throughout its length. There was at this time an occasional evening rise in temperature from .5° to 1° F.

Late in June, 1908, there developed pain and tenderness in the lower end of the right femur associated with slight swelling over the external condyle. A blood count at this time showed:

Hemoglobin	94%
Red cells	5,168,000
White cells	7,000
Differential.	
Neutrophiles	67%
Small lymphocytes	26⅓%
Large lymphocytes	3⅓%
Eosinophiles	⅔%
Mast cells	none
Transitional	2⅓%

About July 1st there developed retention and incontinence of urine with occasional involuntary defecation. A prominent medical man was called in consultation early in July. He felt that there was some grave disturbance in the general metabolism, but was unwilling to make a definite diagnosis. He suggested lactic acid bacilli, which was administered for two weeks with no result. On July 30, 1908, the patient was admitted to the Lutheran Hospital. Examination at that time showed: marked emaciation; moderate degree of atrophy of the right lower extremity; right tibia and femur painful and extremely sensitive to pressure; some tenderness over the right ilium near the posterior superior spine; marked cystitis. The patient was placed in bed on a diet of milk and buttermilk; hexamethylenamine 7½ grs three times a day. Codein sulphate, grs. ss, was required for pain. There was no improvement in the general condition, the pain became more severe and required morphine hypodermatically in doses of ¼ gr. repeated every two or three hours. The bladder was irrigated daily with boracic acid followed by silver nitrate solution, with marked improvement in the cystitis.

On August 29, 1908, the patient received hypodermatically 25 minims of extract of pituitary gland, which was kindly furnished me by the Department of Experimental Medicine of Parke, Davis & Co. On the evening of August 29th, and again on the evening of August 30th, he re-

quired for pain one dose of morphine, gr. ¼. The pituitary extract was given daily in doses of 25 minims thereafter until the discharge from the hospital on September 24th. The pain and tenderness so far subsided as to require no sedative of any sort after the hypodermatic injection of morphine administered August 30th.

The general condition improved slightly for a time; the man returned to his home September 24, 1908. At that time he was still markedly emaciated, extremely weak, had a moderate degree of cystitis, some retention and incontinence, moderate swelling of the upper third of the right tibia and external condyle of the right femur, fusiform swelling of the middle of the shaft of the right femur, moderate swelling over the posterior superior spine of the right ilium, all of these moderately sensitive. For several days after his return home the patient received no pituitary extract and the pain recurred with increased intensity at the several points where swelling was noted. The use of pituitary extract was resumed with immediate subsidence of pain and was continued until the time of death, which occurred one month later from urinary sepsis and general exhaustion.

Autopsy by Dr. T. H. Dexter, October 25, 1908, 24 hours after death: The marked emaciation and swelling noted in the history were also observed at autopsy. There were seven points of rarifying osteitis in the calvarium from ⅛ to ⅜ of an inch in diameter. These points were markedly rough. Section taken from the shafts of the right tibia and femur showed increase in bulk, and what appeared to be a hyperplasia of bone about ½ inch thick between the periosteum and the bone. Parts of the shaft showed a marked degree of rarifying osteitis. In other places the Haversian canals were obliterated. There was rarifying osteitis and softening of the bodies of the tenth and eleventh dorsal vertebrae, involving also the articular extremities of the eleventh rib of each side. The body of the eleventh dorsal vertebra was partly telescoped into the body of the tenth dorsal vertebra. A section of the spinal cord was removed at this point, but the sections were unsatisfactory and no report can be made on them. Pituitary body: Grossly, there was found what appeared like a very small area of apparent hardening which may, however, have been incidental to the age of the patient. Microscopic sections of the pituitary body made by Dr. F. Tilney showed no changes from the normal histology.

I do not intend to draw any final conclusions from this case; I wish to place it on record for what it is worth. However, it is a fairly well established fact that the internal secretions of pituitary gland have much to do with bone metabolism, as has been evidenced by the cure of a few cases of acromegaly following its partial removal. I believe that in this case, notwithstanding Dr. Tilney's report, there was some grave disturbance with the activity of the pituitary gland, possibly functional and not recognizable by our present day methods. It is certainly a striking fact that this patient was having pain of a character sufficiently severe to require doses of morphine ranging from one-fourth grain to two or three grains daily and that his pain was completely and almost immediately relieved by the exhibition of pituitary extract during his last two months of life, and that pain recurred during the few days in which treatment was suspended. Whether this was due to any specific action on the general disease process or to some more indirect influence it is impossible to say. It might have been interesting had this treatment been instituted earlier in the course of the diesase, perhaps before the vertebrae became involved.

Unfortunately no observations were made on the blood pressure.

442 GREENE AVENUE.

WOUND DRESSINGS.

Unless wounds are suppurating very freely, as a general proposition they are dressed too often.

Peroxide of hydrogen injected into cavities and sinuses often carries the infection further into uninvaded tissues. Peroxide is also too strong to apply pure to newly healed tissue.

Sterilized gauze without dusting powder is sufficient protection for any clean surgical wound.

Sterile water, saline solution, or very dilute antiseptic solution should always be given preference over the stronger antiseptics, which, in destroying the pus cocci, at the same time destroy the new epithelial tissue by which granulating wounds are covered.

There is no better protection against infection than the free application of large sterilized pads or dressings with which they should be abundantly covered.

Absolute physiological rest by a properly applied splint, or confinement in bed, is a great time saver in the healing of wounds.

Silk-worm sutures are much less likely to produce stitch abscesses, and should be given the preference over catgut wherever practicable.

Zinc oxide plaster has a wider field of usefulness as a surgical appliance than has been given to it.

In redressing wounds, all materials should be thoroughly softened by warm sterile water before the dressing is removed.—L. SEXTON, in *The Virginia Medical Semi-Monthly.*

CLEANING MACHINERY WOUNDS.

In removing the paint, dirt and grease incident to machinery accidents, spirits of turpentine makes one of the best cleansing and antiseptic agents for removing grease and oils that are so ground in as to be almost impervious to soap and water. There has recently come into vogue the application of diluted tincture of iodine to just such injuries as above alluded to, with results as good in many instances as the old plan of scrubbing with green soap, manipulating the parts and trying to get rid of materials that are practically ingrained into the tissues. In fact, the extensive scrubbing of very painful and lacerated wounds and injury is giving away to less heroic washing and brushing at the first-aid treatment.—L. SEXTON, *in The Virginia Medical Semi-Monthly.*

American Journal of Surgery
PUBLISHED BY THE
SURGERY PUBLISHING CO.
J. MacDONALD, Jr., M.D., President and Treasurer
92 William St., N. Y., U. S. A.
to whom all communications intended for the Editor, original articles, books for review, exchanges, business letters and subscriptions should be addressed.
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WALTER M. BRICKNER, M.D., Editor

NEW YORK, FEBRUARY, 1911.

THE PRESENT STATUS OF "606."

Inasmuch as dioxy-diamino-arsenobenzol," "606" or Salvarsan, is now available to the profession generally, it seems opportune to offer a brief summary of the status of this remedy to date.

In accord with experiences following the introduction of other new remedies, it was to be expected that much of the enthusiasm with which "606" was greeted would be lessened after a more extended trial. This has indeed proven to be the case. It has, for instance, been definitely established that the "Sterilisatio Magna," in Ehrlich's sense, *i.e.*, the permanent destruction of the spirochetes in the body after a single injection of "606," does not occur in the majority of instances. Recurrences of the diseases after one injection are being reported with greater and greater frequency the longer the cases are observed, and it has been shown that these recurrences are more likely to occur in early syphilis than in the later stages. Some observers report as high as 25 per cent. recurrences. Despite this, it is fairly unanimously conceded that "606" far surpasses any other agent at our command in ridding the body quickly of syphilitic lesions, thereby establishing the greatness of Ehrlich's discovery beyond peradventure. For these reasons, it has been held by many observers, that it is necessary to repeat the injection at certain intervals in order to bring about a permanent cure. Ehrlich himself admits this short coming and advises re-injection, the first three to eight days later and again after several weeks until a persistently negative Wassermann reaction is obtained.

The impression is also gaining ground that the immediate effects are as good after small doses as after the larger dose recommended by Ehrlich. Some observers, in fact, recommend that the best method of treatment consists in the injection of small doses frequently. It will be gathered from these remarks that opinion in regard to the proper method of administering this drug has not crystallized.

The claims of the early sponsors that such parasyphilitic diseases as tabes, general paralysis. etc., will be cured by "606" have proven unfounded. These maladies are apparently as little influenced by "606" as by mercury.

Improvements in the technic of administration are perhaps among the most important of the later contributions to this subject. The original method of injecting a neutral suspension is fast being discarded owing to the excessive pain, occasional intense general reaction and the tendency to cause sloughing at the site of the injection. Instead, the method of Neisser, who suspends the drug in an oil (preferably Iodipin) is slowly being adopted. This method is not attended by the disadvantages we have mentioned. Whether the injection should be made intravenously, as Ehrlich now recommends, or subcutaneously, has not been settled.

Whether mercury will be ultimately abandoned in the treatment of syphilis is still a mooted question. The majority of observers reveal a notable unwillingness to abandon the older specific and hold the view that the ideal method of treating syphilis will probably consist in a proper coördination in the administration of both "606" and mercury. At all events, it is a striking fact that in the most recent reports, more permanent results have been obtained in cases which have undergone mercurial therapy after the immediate lesion has been cured by "606."
—U. J. W.

ORAL HYGIENE IN SURGERY.

The relation of "oral sepsis" to diseases of the digestive tract and to some types of anemia, as first described by William Hunter, has been repeatedly referred to by others and has been fairly accepted in principle. In practice, however, a close inquiry into the condition of the gums and teeth preparatory to surgical operations is often

forgotten. Pyorrhea alveolaris is the most common form of oral sepsis. In its pronounced type it is scarcely apt to escape the surgeon's notice on preliminary examination. But, unless deliberately looked for, a less extensive form of the affection may be quite unnoticed until past-operative intestinal disturbances, stomatitis, etc., call attention to it.

Whether or not pyorrhea alveolaris is of constitutional (biochemical) origin, as set forth by Talbert,* it is certain that in most cases it cannot be adequately treated without attention to the bodily functions. On the other hand, whether constitutional or not in its inception, pyorrhea is a pyogenic process and therefore essentially a surgical condition, both in its local aspects and in its possibilities for distant mischief.

Especially in cases involving gastric and intestinal operations is it important to rid the patient, as far as possible, of pyorrhea or any other form of oral sepsis. A dentist is a desirable addition to the regular hospital staff; and in all the wards—medical and surgical—the tooth-brush might well be more generally in evidence. Lessons in the proper use of the brush for cleansing the teeth and for gum massage (Talbert) taught in the hospitals, will bear abundant fruit by being carried into many homes.—W. M. B.

*Talbert—Interstitial gingivitis or so-called pyorrhea-alveolaris.

JOHN C. DA COSTA—A CORRECTION.

In the January issue we recorded the death of John Chalmers Da Costa, of Philadelphia, aged 76, "the author of the best single-volume text-book of modern surgery in English." This was an error. John C. ("J. Chalmers") Da Costa, the author of Modern Surgery and professor of surgery at Jefferson Medical College is, we are very glad to say, still living in his fifth decade. It was his uncle, John C. Da Costa, Sr., surgeon and gynecologist, who died. As explanation of our confusion, there were three members of the Da Costa family bearing the same name, residing in Philadelphia and distinguished in medicine—John C., Sr., John C., Jr., the internist, and "J. Chalmers."

There is much less chance of a subsequent hernia if median abdominal sections are made not through the linea alba, where the aponeuroses are fused into a single layer, but a little to one side where there are three layers external to the transversalis fascia, viz., the anterior rectus sheath, the rectus and, except in the hypogastrium, the posterior rectus sheath.

Surgical Suggestions

In the presence of subpectoral or parasternal suppuration be on the lookout for a mediastinal abscess.

For oozing from the brain surface, during intracranial operations, the application of thin bits of absorbent cotton, as suggested by Cushing, is excellent.

A rounded swelling situated over the insertion of the hamstrings on either side of the leg is apt to be an hygroma or ganglion derived from the tendon sheaths.

Phlegmanous processes in the neck, especially suppuration in the deeper planes, cannot be too promptly evacuated,—they are often followed by mediastinal or pulmonary infection.

When operating upon or dressing suppurative lesions (especially those of pleura, pericardium, joint, etc.), it is a serious mistake to disregard aseptic technic. The danger of secondary infection must always be borne in mind.

When an injury to the carpus is suspected, it is important to have skiagraphs of the lateral as well as of the sagittal view. The latter alone may fail to demonstrate a dislocation of one of the bones, and even a fracture may escape detection in it.

If pain on walking persist after a fracture of the oscalcis, or, indeed, after an injury in which fracture may have been overlooked, determine with the *X*-ray whether there is a projecting fragment or a breaking down of the inferior arch of the bone, or both.

Satisfactory reduction is the most important step in the treatment of Colles' fracture. Once reduced the fragments have little tendency to displacement; therefore, prolonged immobilization without frequent movement of the wrist will result in a stiff joint, for which the nature of the injury does not provide excuse.

If a chronic localized osteo-periostitis, as shown by the *X*-ray, continues to give pain in spite of internal (specific) treatment, the bone should be explored. One is very apt to find a small collection of pus in the medulla of which the radiograph gives no indication.

Surgical Sociology

Ira S. Wile, M.D.
Department Editor.

A SOCIAL STUDY OF VENEREAL INFECTION.

Excellent authorities estimate that from sixty to seventy per cent. of unmarried men contract gonorrhea. Gynecologists agree that about this same proportion of severe pelvic suppurations are due to gonorrhea and that no class of society is spared.

The proportion of syphilitic infections to gonorrhea varies between one to eight and one to fifteen, according to different writers, and this is among the better class of men in New York.

It is extremely difficult to obtain reliable statistics as to the frequency of venereal disease. About a year ago I began to collect a series of cases giving the age of the boy at his first exposure and any subsequent history possible. It seemed that this might be particularly useful, for the present tendency is toward instruction of youths in sexual hygiene, and the difficult point to decide is at what age to begin such instruction.

Such a list, to be of any value, should be obtained from men in good average health and not at some venereal clinic.

As examining physician for an insurance company (in New York), I have examined a large number of applicants and during the last few months, after finishing the regular medical examination (and assuring them that their answers had nothing to do with the insurance and were not put on the application) I have put a series of questions to each of them.

All of these men belonged to what is called the middle class.

Up to the present I have a record of three hundred (300) cases with data as to age; nationality; if foreign, at what age they came to the United States; temptation; age at marriage; age at first exposure; venereal disease, acknowledged or denied; shreds in the urine as revealed in the single sample obtained for insurance work.

Ninety (30 per cent.) of these men were single, and 210 (70 per cent.) were married.

One hundred and eighty-eight (89.5 per cent.) of the 210 married men acknowledged intercourse before being married, and 22 (10.5 per cent.) denied previous exposure.

Of these 22 the urine of 9 showed distinct evidence of gonorrhea, leaving 13 (6.2 per cent.) out of 210 married men who may not have been exposed before marriage.

Eighteen (8.5 per cent.) of the 210 acknowledged having had one or more attacks of gonorrhea when young; the urine of 9 of these showed evidence of this, while the urine of the other 9 was normal.

From the evidence offered by the urine alone 57.4 per cent. of the 188 who acknowledged exposure before marriage showed signs of gonorrhea, and the urine of 42.6 per cent. appeared normal.

Seventy-six (84.4 per cent.) of the 90 single men acknowledged intercourse, and 14 (15.6 per cent.) denied exposure.

Of the 14 who denied exposure, the urine of 2 showed evidence of gonorrhea, leaving 12 single men, *i. e.*, 13.3 per cent., who may not have been exposed.

Nine of the 90 men (10 per cent.) acknowledged having had gonorrhea, and 7 of these 9 showed shreds in the urine.

From the urinary evidence alone 61.8 per cent. of the 76 single men who acknowledged exposure had had gonorrhea, and in 39.2 per cent. the urine was normal.

From these figures it is evident that there is practically no difference between the figures for the native born and group percentage.

Two hundred and sixty-five of the 300 men gave me their age at their first exposure.

The youngest was twelve years of age. One boy.

About 70 per cent. of the men were exposed between the sixteenth and twentieth year, and 12 per cent. were exposed before their sixteenth birthday. It is obvious from this list that any instruction to be of much value must be begun by the fifteenth or sixteenth year.

Of the 300 men questioned only one acknowledged having had syphilis and from the physical examination no evidence of syphilis was obtainable in any of them.

JOHN WILLIAMS COE, M.D.,
NEW YORK CITY.

The Dark Ages belong to the history of mankind. All mankind starts life with an inability to see. Some few must always live in the Dark Ages whose real blackness only such as have suffered the loss of sight can understand. We hear of a Helen Kellar or a Laura Bridgman, but little does the world know of the countless sufferers from perpetual darkness who have not had the opportunity or ability to rise above their blindness.

The brilliance of a cataract operation, the untold wonders that are attributed to careful refraction, pale before the sad fact that blindness falls for the most part into the category of preventable conditions. More eyes and less spectacles, more vision and less institutions for the blind should be the slogan!

One-fourth of all the children in the schools for the blind are there because of improper care immediately after birth. The prevention of ophthalmia neonatorum is not idle clamor. One two-hundredth of all the births registered in New York State during 1906 represents the toll of blindness from this single cause in one state. The question of gonorrheal ophthalmia acquired during childhood, or adolescence is entirely ignored. In the United States there are from 6,000 to 7,000 persons totally blind from gonorrheal ophthalmia. This number does not include those under the strain of partial blindness. The official census of the blind in New York State showed that there were 6,200 in the State and that 32 per cent. became blind from

this single preventable cause. At the Pennsylvania School for the Blind 33⅓ per cent. of the admissions for the years 1900-1907 was due to ophthalmia neonatorum.

In cold financial terms the average cost to the State of a person blind from birth is $10,000. How much blindness would the proper use of this sum prevent? It is no dream that the time is approaching when the public mind will grasp the economic necessity of spending for the preservation of sight instead of for trying to make an impossible atonement for the disability that might have been averted.

The great problem does not lie in the training of the blind in massage, piano tuning, knitting, or broom making. The chief concern should be the elimination of blindness as dependent upon congenital syphilis, ophthalmia neonatorum, occupational diseases, industrial accidents, or the accidents arising in the course of such celebrations as the Fourth of July.

For the years 1903 to 1907, on the strength of patriotism (?), 88 persons became totally blind, and 389 suffered the loss of one eye. On July 4, 1910, seven persons were completely blinded and 33 lost each one eye.

It is difficult to compile the results of work accidents and to definitely ascertain the number of cases of blindness arising from burns from lime, molten metals, or sulphuric acid. The injuries of the eye among miners, stone cutters, etc., through foreign bodies penetrating the cornea, are difficult to estimate though easy to prevent.

Moderate defects of vision do not throw workers out of industry. It has been estimated that a skilled laborer with .75 normal vision or an unskilled worker with .50 normal vision, suffers little loss of earning capacity. The loss of one eye requires the re-adjustment of a worker to his environment and that often means the acquiring of a new trade or vocation and late in life it means dependency.

Bottle maker's cataract has been scheduled as an industrial disease and this condition is due to the effect of intense light and heat. Two-thirds of these cararacts occur to workers under the age of 50 years.

The types of blindness that are attributable to toxic substances like methyl alcohol are also difficult to estimate, but the reality of the condition is not to be questioned.

In New York State the losses of eyes, complete or partial, for the years 1901 to 1905 varied only slightly in a few industries.

Lumber Industry..... .3% of all accidents.
Textile Industry ..... .2% of all accidents.
Electrical Industry .... .4% of all accidents.
Metal Industry ..... .6% of all accidents.

These figures agree closely with the calculations of the industrial accidents in the United Kingdom for the years 1896 to 1905, during which time the loss of one or both eyes was .2% for males and .4% for females.

There has been an attempt at organized effort to overcome the blindness due to ophthalmia neonatorum by legislative measures in the States of New York, Massachusetts, Maryland and Ohio. There has been a total failure to grasp the principle that *all* forms of avoidable blindness, whether from disease or accident, must be prevented. The Russell Sage Foundation has maintained for two years a Committee on the Prevention of Blindness and its aim is to attack the problem in all its phases. The New York State Commission on the blind in 1907 estimated that of each 1,000 cases of blindness in the State, 450 were possibly avoidable, and 325 surely preventable. Let the causes be enucleated rather than the eyes!

Book Reviews

The Treatment of Disease: A Manual of Practical Medicine. By Reynold Webb Wilcox, M.A., M.D., LL.D., Professor of Medicine (retired) at the New York Post-Graduate Medical School and Hospital; Consulting Physician to St. Mark's and to the Nassau Hospital; formerly President of the American Therapeutic Society, etc., etc. *Third Edition.* Octavo; 1023 pages. Philadelphia: P. Blakiston's Son and Co., 1910. $7.50 net.

This edition shows revision not only by a great increase in the text, but also by the addition of 42 diseases. The work is more than the title indicates. It is really a Practice of Medicine in which therapy is elaborated and emphasized. The treatment is prefaced by a systematic and condensed exposition of the disease in question. The author has wisely omitted general remarks on treatment, a feature common in books on therapy, and plunges directly into a special discussion of each disease. The work is most comprehensive and includes not only the commoner diseases that are met with in this country, but also all the rarer maladies and those endemic to distant and tropical countries. Furthermore, the author reveals himself a close student of the latest medical literature by including diseases which have only been recently recognized as clinical entities. As instances, we may mention Brill's disease, diseases of the parathyroid glands, and Ballz's disease. In fact, we know of few books which are more complete nosologically than this.

The author's views on therapy are orthodox and reveal a thorough acquaintance with the most modern measures. While the text is largely concerned with medical treatment, surgical indications are duly recognized and with fitting emphasis. The only criticism that may be offered is that in many instances recommendations are indicated too vaguely. Our impression is that the author has subordinated his own experiences unduly. References would have greatly added to the value of the book, but we recognize that these would have increased the size of the book to unwieldy proportions. The index is most thorough.

Treatise on Disease of the Skin. For the use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology in the Jefferson Medical College, Philadelphia; Dermatologist to the Howard and Philadelphia Hospitals; Consulting Dermatologist to the Pennsylvania Institution for the Deaf and Dumb, to the Pennsylvania Institution for Feeble-minded Children, and to the Widener Memorial School for Crippled Children, etc. *Sixth Edition.* Octavo; 1195 pages; 289 illustrations in the text, and 34 colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1910.

The five previous editions of this voluminous work on diseases of the skin have met with a most cordial reception by the medical profession. The author has included in one volume the most important facts relative to skin diseases, arranged and classified in a simple manner. Not only is the description of diseases all that could be desired, but the illustrations, particularly those in colors and the plates, are beautiful and clear.

The sixth edition differs from the former ones in many particulars, although the general arrangement is the same. The section on pellagra has been rewritten and enlarged to meet the increase in our knowledge of the disease as seen so extensively in this country during the past few years. The references to the literature of the subject are very extensive. Sporotrichosis, a comparatively new disease, is fully presented. Grain-mite dermatitis, "prairie itch," is described at some length. The dermatitis due to the brown-tail moth, quite prevalent in the past few years in the eastern section of our country, is likewise given space. On account of the increasing prevalence of tropical lesions, due to our increased territory in other zones, it has been necessary to introduce such articles as gargosa, tropical ulcers, ulcerating granuloma of the pudenda, etc. Among the most important remedial measures, the author dilates upon the treatment of dermal lesions with carbon dioxide snow. Liquid air (demonstrated by Dade in 1905) is an extremely efficient cauterant, but on account of the difficulty of keeping it, it has been almost entirely abandoned in favor of carbon dioxide snow (introduced by Pusey in 1905), althongh its degree of coldness is not as great as the former. The author's experience with it has been as favorable as that of others.

Stelwagon is a keen observer and, on account of his vast experience, has been able to incorporate in his book the most important facts in connection with diseases of the skin. We particularly wish to commend the clearness of the illustrations which are a so necessary part of a treatise of this kind.

Disease of the Pancreas: Its Cause and Nature. By EUGENE L. OPIE, Professor of Pathology, Washington University, St. Louis, Mo.; formerly Member of the Rockefeller Institute for Medical Research, and Pathologist to the Presbyterian Hospital of New York City. *Second Edition, rewritten.* Octavo; 387 pages; illustrated. Philadelphia and London: J. B. LIPPINCOTT Co., 1910.

The immense advance that our knowledge of pancreatic disease has made in the last seven years is well shown by the difference between the first and second editions of this work. With few exceptions our ideas have become clarified, and Opie is thus able to include not only those diseases that depend upon the peculiar physiology of the pancreas—acute hemorrhagic pancreatitis, fat necrosis and diabetes mellitus—but also lesions which correspond to changes found in other organs—tuberculosis, syphilis, calculi, cyst, carcinoma, etc. The interrelation between the pancreas and other glands of internal secretion is emphasized, and the importance of the Islands of Langerhans in diabetes is apparently accepted as settled. Opie, with great skill, has correlated the numerous clinical and experimental data in such a fashion as to leave but few gaps, and has wisely refrained from indulging in much theoretical speculation. Most readers would welcome a summarizing paragraph at the end of each chapter in order to emphasize the facts which are somewhat hard to grasp when interspersed by so much experimental and casuistic detail. This monograph is a valuable contribution to our medical literature.

The Practice of Surgery. By JAMES GREGORY MUMFORD, M.D., Visiting Surgeon to the Massachusetts General Hospital; Instructor in Surgery in the Harvard Medical School; Fellow of the American Surgical Association, etc. Octavo; 1,015 pages; 682 illustrations. Philadelphia and London: W. B. SAUNDERS COMPANY, 1910.

This work is less a text-book than a treatise on practical surgery, presenting the viewpoints of the author. Underlying surgical principles are outlined but no attempt is made to elucidate them, the author's object being to present the subject of surgery as it is seen at the bedside. He therefore deals with his material in a way that is unique—the most common and important diseases are first fully described, and the rarer conditions are but briefly depicted. It is therefore evident that a preliminary knowledge of surgery is required before one may intelligently study this book.

There is a large fund of practical information stored up in the pages of this volume; information based on the author's wide clinical experience. Many of his statements must, however, be taken exception to. In a review of this kind we can call attention to but a few of them. It cannot be considered sound advice "when operating within the abdomen for some other lesion, always investigate the condition of the appendix." Rectopexy and sigmoidopexy are simply described as "satisfactory operations," although at the present time the opinion is generally held that a satisfactory operation for prolapse of the rectum is yet to be described. The only laboratory test described in the book is a guaiac test for occult blood in the stomach (p. 132). We do not understand why just this test should be selected for elucidation. Pylorospasm is described as a rare disease in which, if gastric lavage and dietary measures fail, Finney's pyloroplasty is the rational method of cure. Mumford believes that "one should always remove gall-stones when the abdomen is opened for any purpose, provided the patient's strength will permit this prolonged operation." In his description of extrauterine pregnancies the author states that all these conditions are always primary in the tube, never in the ovary; he does not state on what basis he ignores primary ovarian pregnancy. Describing pyelotomy for stone in the renal pelvis, Mumford states that "the wound always leaks urine for several weeks." This statement is contrary to the experience of most surgeons.

The last 220 pages of the book are devoted to minor surgery. This section is a recast of a former work of the author on the subject and is most admirably presented.

No attempt is made at a complete bibliography, yet we cannot avoid criticism of the fact that almost all the references to the surgical literature are to the Boston school. Nobody questions the important part that Boston has played in the development of modern surgery but it is not fair to give the impression that almost all important observations have emanated from that city.

The book has made interesting reading, couched as it is in an appealingly straightforward style. It appears entirely free from typographical errors. The illustrations are excellently reproduced and, in most instances, very illuminating, and the appearance of the volume is most attractive.

Vorlesungen Ueber Harn Krankheiten Fuer Aerzte und Studierende. C. POSNER, A. O. Professor an der Kgl. Friedrich Wilhelms Universitaet zu Berlin. Octavo; 355 pages. Berlin: AUGUST HIRSCHWALD, 1911.

In this collection of a series of lectures given by the author, we have another excellent addition to the German publications that have appeared in the past few years as reviews of the subject of diseases of the urinary passages. The book is written for the general practitioner who usually first sees cases of disease in the genitourinary tract. To a large extent, the author presents his own views of the subjects he covers.

The chapter on general diagnosis and therapy is well written and deserves careful perusal. Cystoscopy and ureteral catheterization are carefully described, Posner not favoring the urinary separator in most cases. The second part of the book deals with gonorrhea and its complications; tuberculosis, calculi and tumors of the genitourinary tract. No new theories or methods of treatment are advanced, but the standard ones are fully and fairly described.

Illustrations would have enhanced the value of the text in many places, yet the work must be considered as valuable because clear and thorough.

Dawn of the Fourth Era in Surgery. By ROBERT T. MORRIS, A.M., M. D., Professor of Surgery in the New York Post-Graduate School and Hospital, etc. *Duodecimo;* 145 pages. Philadelphia and London: W. B. SAUNDERS COMPANY, 1910.

This little volume consists in a collection of articles that had originally been published in various medical journals. The author has gathered them together rather than have reprints made of two of the articles for which many requests have been made.

Those not already familiar with these short essays will find this little book interesting reading.

Progress in Surgery

A Résumé of Recent Literature.

The Distribution of Appendicitis, with Some Observations on Its Reaction to Diet. A. T. WILLIAMS, Liverpool, *British Medical Journal*, December 31, 1910.

As chairman of the Science Committee of the British Medical Association, Williams has collected a large series of statistics from various sources, and offers the following conclusions:

It would be unwise to draw any broad deductions from the above incomplete statistics, except that appendicitis has a markedly different incidence in various countries, and that this different incidence may be very largely a question of diet.

Many theses have been advanced to explain this relationship to diet. The above statistics, if they show anything, show that where there is a large meat eating population there appendicitis is a common disease, whereas in those countries where little meat is eaten appendicitis is rare if not almost unknown.

There is no doubt, according to most people, that apart from improved diagnosis appendicitis has greatly increased in the British Isles in the last few decades. Very little evidence has so far been advanced to any explanation of this. The greatest change in the diet of the people has undoubtedly been the marked increase in meat eating. With the amount of foreign meat and canned food the poorer classes even are now able to supply themselves in fair quantity with meat of varying kinds, more particularly mutton.

The fat of meat, more particularly of mutton and beef, is characterized by the small amount of unsaturated fatty acid they contain. That the fat in the food determines the nature of the fat in the tissues is well known. From the clinical and chemical work quoted above it would seem that this factor determines the nature of the soaps to be found in the wall of the intestinal tract (probably as a manifestation of their excretion), and where these soaps are the calcium soaps of saturated fatty acids there is usually some evidence of disease, either a mucous colitis or an intestinal lithiasis. In appendicitis, with which these two condidtions are clinically associated, there is the same occurrence of these calcium soaps in the wall or in the lumen.

In my opinion, therefore, there is some evidence to connect the nature of the fat in the food with the incidence of the disease.

Further observations are being made on the lines indicated at the beginning of this paper, and investigations are being carried out as to the nature of the fats in the food, the tissues, and, more particularly, in the intestinal tract. Experiments which have been recorded show that the fats in the tissues are not neutral fats but complex phosphatides, the fatty acid radicles of which are largely unsaturated, and evidence is being obtained which would tend to show that these unsaturated fatty acid radicles are those which are used for the immediate use of the body, and it is possible that the calcium soaps above mentioned are evidences of some excreting process of the intestinal tract for the purpose of eliminating either the calcium or saturated fatty acid radicle.

Appendicitis in Childhood, with a Report of 300 Cases. H. C. DEAVER, Philadelphia. *Journal American Medical Association*, December 2, 1910.

In a paper based on the analysis of 300 cases, Deaver insists on the importance and frequency of appendicitis in childhood. The number of cases increases in frequency with age, from birth to puberty, and it is more common in males. The course is more often severe than in adults. There is less tendency to formation of strictures, but fecal concretions are more frequent. As predisposing causes he mentions enteric fever, intestinal catarrh and influenza, but other infections and nasopharyngeal trouble are hardly to be considered as etiologic factors. The symptoms in infants are often scanty, irregular and misleading, and the disease is more frequent than the statistics show. In older children acute attacks occur suddenly with stormy symptoms even more frequently than in adults. Chronic appendicitis indicates a focus of chronic autotoxemia with all its bad results. He believes that all cases of abdominal trouble in children should be considered appendicitis until proved otherwise. The differentiation should be made with intestinal catarrh or worms, right-sided pneumonia or sacroiliac disease, torsion or ovarian cysts, mesenteric cysts, cystitis and rectal abscess. With early diagnosis and operation the prognosis is favorable, but it rapidly becomes worse after twenty-four hours. In chronic appendicitis an acute attack with perforation is always to be feared. In intra-appendiceal appendicitis complete removal of the appendix and the diseased surroundings is advised. Non-operative treatment is indicated in localized abscess with diffuse peritonitis. Opium and purgatives are absolutely contra-indicated. Operation is even more suitable to children than to adults and postoperative treatment is very important. The Fowler position must not be kept up for more than thirty-six hours in drainage cases lest intestinal obstruction be set up. The symptoms of obstruction are sudden severe pain, becoming paroxysmal and by a nausea, spitting up and vomiting. Later symptoms result from toxic peritonitis. The temperature and pulse are of little significance. With numerous adhesions, ileocolostomy is the best procedure. Secondary abscess must be watched for. Its presence is revealed by a rise and continued high temperature, with a high leukocyte count and local signs. Contagious diseases should be recognized at once. Drainage is to be employed only when the exudate is purulent or profuse. It produces adhesions and predisposes to intestinal obstruction. A wet dressing is the best for absorption. A tabulated statement is given of his cases.

Practical Method of End-to-End Anastomosis of Bloodvessels Using Absorbable Magnesium Rings. V. D. LESPINASSE, CARL FISHER and J. EISENSTAEDT, Chicago. *Journal American Medical Association*, November 19, 1910.

The authors first describe the physical qualities of magnesium, especially its solubility in saline fluids and the body fluids and the non-toxic character of the products, and then describe the technic. This requires the illustrations for its perfect understanding, but several methods are employed, each of which is described. The method of repair of a longitudinal slit in a bloodvessel is also described. The period in which the magnesium rings are absorbed varies from 80 to 100 days for complete absorption. There is nothing inside the lumen of the vessels after the operation is completed, and if trauma to the intima is avoided and the vessel washed free from all clots and not tied tightly enough so that the rings cut the intima where it bends outward to form the flange, thrombosis will not occur. Secondary thrombosis, such as occurs in the Payr operation, is impossible. Primary stricture cannot occur if the vessel is accurately measured and a proper sized ring is at hand with which to make the anastomosis. Secondary stricture has never occurred in any of the experimental operations. Primary hemorrhage could not occur and there is no danger of embolus unless there is thrombosis. Hence to avoid embolus avoid thrombosis. The following principles, the authors say, must be kept in mind in making bloodvessel anastomosis with magnesium rings: "1. The vessel must be accurately and cleanly dissected. 2. All wound hemorrhage and oozing must be checked. 3. All clots must be removed from the ends of the bloodvessel. 4. A proper sized ring must be used. 5. The rings must be tied together under more than 6-pound pressure. 6. Traumatism to the intima behind the line of union must be avoided absolutely. 7. Gentleness and accuracy in all manipulations is absolutely essential. 8. Perfect asepsis must be maintained." The authors believe that the operation is well within the skill of the average surgeon, is safe, certain and easy, and should be done in all wounds of the large vessels, both venous and arterial, and in all false aneurisms and arteria-venous

aneurisms. Under these conditions, a short piece of vessel, including the lesion, can be removed and an end-to-end anastomosis made.

Surgery of Musculo-Spiral Paralysis. A. H. BARKLEY. *The Lancet-Clinic,* November 26, 1910.

Among the symptoms enumerated, the most important is the loss of motion; though sensation may be abolished, it does not necessarily follow in all cases of trauma. To decide the question as to when to operate these cases, it is necessary to take into consideration all the circumstances surrounding the injury. Where open wounds and crushing injuries are followed by paralysis, it is wise to enlarge the wound and inspect the condition; and also in cases where there are no lacerations or open wounds, but in which paralysis is present and little doubt exists as to grave injury to the nerve, it is advisable to institute operative procedures. A good general rule is to approximate the ends of the severed nerve as soon as possible. It may also be said that the length of time that has elapsed and whether or not the condition is getting worse or better, is of the utmost importance in determining the question of operation.

The prognosis is usually good. In cases where inflammatory trouble and supperation sets in, the results are not nearly so good as infection not infrequently defeats a well executed operation and often necessitates a second attempt. In cases where recovery takes place, sensation usually returns first and in some instances has been noticed on the day following operation.

As regards operation, it should be suited to the individual case. In some, direct end-to-end anastomosis can be done; in others, the defect may be overcome by bridging, suture a distance, and in other cases an anastomosis may be done by suturing a sliver of the median to the distal end of the musculo-spiral nerve.

Forannitti's "Tubulization" Method of Nerve Suture with Report of Case. GASTON TORRANCE, *The Alabama Medical Journal,* September, 1910.

Forannitti's aim was to isolate the ends of the nerve in a tube which would serve as a guide for the growth in the restoration of the normal functions and prevent cicatricial adhesions around the point of suture. It was essential that the tube be of material that would not act as a foreign body in the tissues and of such a texture that the nerve would not become adherent to it.

He found that for general use the veins and arteries taken from a freshly slaughtered calf combined all of these features. The artery after being stretched over a glass rod or tube was hardened in a five or ten per cent. formalin solution for 48 hours, washed in running water for 29 hours, boiled for 20 minutes and then placed in 95 per cent. alcohol.

In 1907 Hashimoto and Tokuoka reported fifty operations done on forty-seven patients by this method. Their results were uniformly good when operation was undertaken early enough. Good results were obtained in some cases 200 days after injury, but the prospects were much more promising when undertaken earlier. They had thirty-one satisfactory results out of the fifty operations. None were good after the 300 days had elapsed. Neuralgia vanished at once or soon after the operation. Restoration of nerve function and normal nutrition, in the limb, did not become manifest in less than six months to a year.

The author reports a case of musculo-spiral nerve paralysis. The ends of the nerve were freshened and sutured together with fine catgut in an absorbable tube prepared from the artery of a cow. Complete regeneration of the nerve took place.

A Further Report on the Treatment of Facial Neuralgia by Alcohol Injections. O. G. T. KILIANI, New York. *Medical Record,* December 10, 1910.

Since the publication of his last report (May, 1909), Kiliani has had 68 cases of facial neuralgia. In every patient the injection of alcohol was followed by relief of symptoms. The author ascribes his greater success in this series to three reasons: 1. He is more careful in making a diagnosis of facial neuralgia. 2. Improvement in technic. With the exception of one case, in which an injection directly into the Gasserean ganglion was made, all the injections were made into the peripheral branches of the nerve. By peripheral injections the author includes not only injections into the foramina of exit of the three branches of the fifth nerve, but also into the spheno-palatine ganglion, and the anterior and posterior palatine nerves. 3. The greater clinical experience which he has acquired. The average freedom from pain after injection has been about a year. Kiliani has also found that the recurrences seem to occur at longer intervals. In fact, he has had a number of cases in which apparent cure was ultimately obtained.

The Orthopedic Treatment of Spinal Paralysis. F. Lange, Munich. *The American Journal of Orthopedic Surgery,* August, 1910.

Until recently, the orthopedic treatment of the acute stage of anterior poliomyelitis has been neglected. Lange has found, however, that the severe pain along the spinal column present in many acute attacks entirely disappears upon the application of a plaster jacket embracing the trunk. He believes that such a jacket should be applied as soon as the diagnosis is made.

For the first year after the attack—the period during which paralyzed muscles may recover—everything should be done to help the muscles regain their function. The writer especially warns against too firm and too deep massaging. Orthopedic apparatus is of course essential for the prevention of contractures, but there is a strong tendency toward the use of very heavy apparatuses that may do great harm by pressure on partly atrophied muscles. There is a further harmful tendency towards wearing apparatuses for periods of time that are far too prolonged. In the course of time most patients want to be relieved from their apparatus.

Several operative methods may be employed: Redressement with or without tenotomy, nerve-transplantation, arthrodesis, and tendon-transplantation. All authors are agreed that redressement is always necessary as a preliminary operation when contractures have already occurred before the patient comes under observation. Some authors believe that redressement, combined with tenotomy, is sufficient operative treatment for most cases. Lange's observations, however, indicate that the deformities (of the paralytic type) will recur after such treatment.

Neuroplasty may be an operation of the future for cases of paralytic deformity. Up to the present, however, Lange has not seen a perfect result in a single case of nerve transplantation in poliomyelitis. Arthrodesis is the operation of choice for cases in which there is paralysis of all or nearly all the muscles of the part. But in cases in which there are a few well preserved and strong muscles, tendon transplantation gives the best results.

Early in his experience, Lange found that tendon transplantation after Nicoladoni's method (in which bellies of healthy muscles are implanted into paralyzed tendons) resulted in many failures and therefore, in 1898, he devised the well-known method of sewing the invigorating muscles directly into the periosteum. In addition Lange employs silk strands as artificial tendons, with the object of lengthening the muscles. The latter procedure has proven of great value. Finding that the subcutaneous implantation of silk was prone to lead to infection, Lange prepares the silk by first boiling the strands in bichloride of mercury and subsequently imbedding them in paraffin.

There are numerous methods of operation that vary, of course, according to the conditions found. But Lange has always kept his technic simple by acting on one principle: Unimportant functions must be sacrificed and attempts should be made to re-establish only the most important movements. Careful supplementary treatment with night splints and supports must follow any of these operations.

Desmoid Tumors. R. MORISON and H. DRUMMOND, Newcastle-upon-Tyne. *Lancet*, November 5, 1910.

The authors report seven cases. Desmoids are tumors arising from the sheath of the rectus and are either fibrous or fibro-sarcomatous in structure. Nearly all the reported cases have occurred in women who have borne children and who not infrequently give a history of difficult labor or of injury to the abdominal wall. In the authors' series, six occurred in women and one in a male. The tumors are never tender except in the later stages, when the peritoneum is involved. They become more prominent when abdominal muscles are made tense, and do not move with respiration. These two features are common to all tumors of the abdominal wall and serve to distinguish such tumors from intraabdominal masses. As desmoids increase in size they grow longitudinally in the direction of least resistance. The only treatment is thorough excision. Of the authors' seven cases, two died from recurrence, the remainder are well.

Cancer in Tar Workers. J. F. SCHAMBERG, Philadelphia. *The Journal of Cutaneous Diseases*, December, 1910.

In an examination of about twenty men whose work in a large tar factory caused them to be besmeared with tar, Schamberg found four individuals showing evidences of beginning or well marked for cancer. In the first place the dorsal surfaces of the hand, wrists and forearms of these patients were studded with "tar blackheads"—follicular keratoses. Besides these lesions, each of the patients presented one or more pea-sized to bean-sized flat epithelial growths in the skin. One case that permitted of microscopical examination demonstrated a typical epithelioma.

Some of the other workers presented cutaneous lesions that appeared to be forerunners of epithelioma. "It would seem that the carcinomatous changes are prone to occur as the patients near the fifth decade of life."

An analysis of the scant literature of cases of cancer in paraffin and tar workers shows that in not a few instances the lesions occurred on the scrotum. Schamberg sees a close analogy between these cancers and the chimney-sweep cancer. He is under the impression that all these carcinomata are due to the activity of radioactive substances contained in coal and tar. An examination of a specimen of tar made by Mr. Kabakjian, of the University of Pennsylvania, shows the presence of a radioactive substance.

The Value of a Urinary Finding in the Diagnosis of Carcinoma. (*Ueber die Verwertung des Harnbefundes zur Carcinom diagnose.*) E. SALKOWSKI, Berlin. *Berliner Klinische Wochenschrift*, December 12, 1910.

In a series of 10 patients afflicted with carcinoma Salkowski found that the nitrogen, exclusive of that in combination in urea, was present in proportions varying from 2.15 to 4.62%. The average was 3.03. In healthy individuals the average was 1.22%, and in no cases did it reach anywhere the minimum found in cancer patients. The author does not regard this finding as pathognomonic, but believes that it may prove of confirmatory value in suspected cases.

Traumatic Rupture of the Fixed Portion of the Male Urethra. O. J. GAUB, Pittsburg. *Journal American Medical Association*. December 10, 1910.

Gaub describes the anatomic mechanism of rupture of the fixed portion of the male urethra, and describes the methods of its treatment. He points out that it is an injury of serious import and should receive prompt attention when it occurs. If the condition of the patient permits immediate operation, the call to restore the natural passage is imperative. This can be done at any point of the urethra through a median perineal incision. The question of shock should be considered as a primary measure, and leakage of the urine in the early hours is not to be feared. Proper drainage should be instituted to prevent infection. Gaub lays special stress on the position of the patient during operation. The exaggerated dorsal position is advised, using the old Clover's crutch, supplemented by a sand bag under the sacrum, which flexes the pelvis on the vertebral column so as to bring the perineum in the horizontal plane and render the structures taut, permitting an anatomic dissection.

The Effect of Treatment on the Wasserman Reaction. HOMER F. SWIFT, New York. *Archives of Internal Medicine*, December 15, 1910.

Swift has noted a parallelism between the duration of treatment and the Wasserman reaction. In other words, the longer the duration of treatment, the less frequently are positive reactions obtained. This is more evident in the earlier stages of syphilis than in the later. Also in the earlier stages a serum reacting negatively is more liable to become positive when treatment is intermitted than in the later stages. While treatment has as great an effect in producing negative reactions in the late as in the early stages, most of the reactions which became negative in the late stages were only partially positive at the time of the first reaction. Stronger positive reactions in the late stages are harder to influence than positive reactions in the primary stages. This would speak strongly for energetic treatment in the earliest stages of syphilis. In the few cases in which treatment was stopped because of a negative reaction, the positive reaction appeared again in a shorter time in cases in the early stages than in those in the later stages.

Extradural Anesthesia in Operative Surgery. (*Ueber Extraduralanaesthesie fuer Chirurgische Operationen.*) A. LAEWEN, Leipsig. *Deutsche Zeischrift fuer Chirurgie*, Vol. 108, Parts I and II.

It was Cathelin who first experimentally discovered that a local anesthetic injected into the sacral canal produced anesthesia in the region supplied by the sensory sacral nerves—the pudendal region, perineum and buttocks. The results were in general unsatisfactory in the attempts made to employ this method of anesthesia on the human subject by Cathelin as well as others.

Laewen obtained far better results in a series of 80 cases by modifying the original technic. In the first place, he employed his anesthetic in concentrated form and in large amounts. After considerable experimentation he found that two per cent. of novocain in sodium bicarbonate solution, in a dose of 20 cubic centimeters, worked successfully. Secondly, Laewen had his patients sit up during, or immediately after, the injection. Thirdly, one must wait about twenty minutes before satisfactory anesthesia is secured.

Anesthesia begins to disappear after one hour. The scrotal contents are not anesthetized. A few drops of adrenalin should always be added to the novocain solution. In five of the author's series of operative cases, symptoms of absorption developed, but in no case were they serious and to no case did any untoward after-effects appear.

The technic of administration can be acquired only after a number of injections have been made. Because of the difficulty in locating the sacral cornua in very obese subjects, such patients have not been submitted to extradural anesthesia.

In some cases the anesthesia is complete—in others only analgesia is present. The method of anesthesia is best adapted for such conditions as hemorrhoids, fistula in ano, low rectal tumors, lacerated perineum, etc.

The Influence of the Trendelenburg Position on the Quantity of Urine Excreted During Anesthesia. J. WESLEY BOVEE, Washington. *American Journal of Medical Sciences*, January, 1911.

In a series of 16 patients, in whom careful observations were made, it was found that the excretion of urine was markedly interfered with while the patient is in the Trendelenburg position. The diminution in quantity of urine was greater when chloroform was used as an anesthetic than ether. In the author's opinion, therefore, the Trendelenburg position introduces an element of danger in patients with renal insufficiency, cardiac and renal lesions.

A Simple and Effective Apparatus for the Administration of Ether and Chloroform Vapor. CLINTON C. COLLIER, *The Laryngoscope*, December, 1910.

The apparatus is divided into 1, a foot-bulb; 2, the flask or container; 3, tubing, mouth or nose-pieces. The container is made up of three parts—the flask proper, holding 150 c.c, and into this is built an atomizer with an opening at the base and a third part, a small bulb to catch any excess of fiuid.

The container is filled with the desired anesthetic. The foot-bulb is placed on the floor and the hand is placed around the vaporizer. The heat of the hand volatizes the other. When pressure is made on the foot-bulb the anesthetic is sprayed through the atomizer into the mouth or nose piece. The mouth-piece consists of a metal tube curved at a right angle and fitted with rubber tubing for about two inches. This is placed well down into the pharynx so that the vapor is thrown into the larynx. The nose piece is Y-shaped and fitted with rubber tips, 12 c.m. long, which go into the post nasal space. The advantages claimed are lightness and simplicity, ease of operation, getting a definite amount of vapor at the body temperature.

Anesthesia in Traumatic Surgery. G. TORRANCE. *Journal American Medical Association*, December 24, 1910.

Torrance gives summaries of replies to a circular letter sent out by him to prominent surgeons in this country and abroad, inquiring as to their experience with anesthesia and anesthetics in traumatic surgery. Over twenty replies are reported. The majority of surgeons, both here and abroad, seem to give preference to ether over chloroform. A number prefer nitrous oxide with oxygen as the anesthetic, and two (Jones of Liverpool and Buchanan of Pittsburg) speak of dispensing with anesthesia altogether in operations for surgical injuries, in certain kinds at least. Jones claims remarkable improvement in mortality, etc., and that the operation was well borne by the patient. His colleagues, though at first protesting, afterward became enthusiastic when they observed the results. He has performed twenty-seven operations in this way, including the amputation of an arm and a leg in the same patient. Buchanon finds that, in cases of pronounced shock in which a general anesthetic is contraindicated, operations of necessity, such as amputations, can be done without anesthesia without materially adding to shock if done quickly. Abdominal section and internal manipulations are also well endured if not too complicated or prolonged.

A Case of Fatal Sodium Chlorid Poisoning. HARLOW BROOKS, *New York, Archives of Internal Medicine*, November 15, 1910.

A young woman was operated upon in the internal for chronic appendicitis. The operation was quickly done and the patient left the table with a normal pulse, temperature and respiration. A rectal injection of one pint physiological salt solution was ordered every hour for three doses. One hour after the first enema, the patient became restless, nervous and complained of thirst. At the second dose, the symptoms were more exaggerated and she begged continuously for the bed pan. A third enema was given, after which the patient became unconscious; the pulse was small, 120; the temperature was 101° F. The temperature rapidly rose to 109° F., the respirations became very rapid, shallow and difficult, and the patient died eight hours after operation. A few minutes before death about one quart of blood-stained gelatinous material was discharged from the intestine. Respiration ceased five minutes before cardiac action. The urine should no albumen. No autopsy was permitted. Several days afterward it was discovered that the nurse had given the enemata from a stock bottle containing saturated sodium chloride solution. The patient had thus received nearly nine ounces of sodium chlorid.

Brooks found that the symptoms in rabbits to whom saturated sodium chloride had been fed (by stomach tube) corresponded exactly to those of the patient whom he had reported.

Idiopathic Circumscribed Spinal Serous Meningitis. T. H. WEISENBERG and G. P. MULLER, Philadelphia, *American Journal of Medical Sciences*, November, 1910.

The authors add another to the increasing list of reported cases. Pathologically the disease is characterized by a localized collection of clear serum beneath the spinal dura under greater or less tension. At operation the serum spurts forth as soon as the dura is opened; the quantity of serum varies. Owing to pressure upon the cord and the spinal nerves such localized collections cause symptoms similar to those of a very slow growing tumor. The author summarizes these symptoms as follows:

1. Sensory: (a) pains of a numb, burning character in part or all of a limb which vary from day to day in their distribution, and (b) disturbance of sensation which may or may not be absolute, the limits of which vary.

2. Motor: (a) weakness, generally appearing in one limb and later in both, which may be spastic or flaccid on different examinations, and (b) variability in reflexes which may be increased or diminished in consecutive examinations. All the reported cases thus far have been diagnosed clinically as spinal cord tumors, but the authors believe that with a close study of the symptoms and course of the disease, a positive diagnosis is possible. The disease has no definite etiology; many of the reported cases are idiopathic; in a number of instances the disease was ascribed to a trauma; this was the cause in the authors' case. Operation (splitting of the dura) usually offers prompt relief, especially if done early in the course of the disease. In the authors' case, a complete and prompt cure was obtained.

Subcutaneous Traumatic Rupture of the Liver. E. C. RIEBEL. *Quarterly Bulletin of the Northwestern Medical School*, September, 1910.

A case of this rarely reported condition serves as the basis of an article that reviews the literature of the subject for the last five years. The features of the symptomatology are shock, defense musculaire, dulness, at times general abdominal distension. The nature of the trauma is an essential factor in the diagnosis. While cases of ruptured liver do recover without operation, safety requires early operation even if hemorrhage is not threatening. The mortality of the 44 cases gathered from the literature was 43.1 per cent. The paper is enriched by a brief résumé of the cases collated and by a bibliography of the subject.

Thyroid Grafting and the Surgical Treatment of Exophthalmic Goiter. E. W. HEY GRAVES and C. JOLL, Bristol, *British Medical Journal*, December 24, 1910.

Graves and Joll report a case of exopthalmic goitre in which the symptoms were relieved temporarily after removal of a lobe of the thyroid on two separate occasions.

After both lobes were removed symptoms of myxoedema developed. A piece of thyroid removed from a patient who was operated for thyroid adenoma was transplanted into the neck, whereupon all the symptoms of myxoedema disappeared. It is of interest to note also that symptoms of tetany which appeared after the exterpation of both thyroid lobes were found to be largely psychical and disappeared after hypnotism. The authors review the literature of thyroid transplantion fully.

The Treatment of Splenic Anemia by Splenectomy. G. A. SUTHERLAND and F. F. BURGHARD, London, *Lancet*, December 24, 1910.

The authors report two cases, one a girl of 13 years. the other a child of six years, in whom splenectomy was followed by a complete cure. In the first case, 4½ years have elapsed from the date of the operation and the patient is perfectly well. The patient's haemoglobin has risen from 56 per cent. to 90 per cent, and the red cells from 2,500,000 to 4,500,000. In the second patient, operated three months ago, the haemoglobin has already risen from 34 per cent. to 72 per cent. and the red blood cells from 2,500,000 to 5,550,000. Inasmuch as this form of anemia is nearly always fatal, splenectomy is therefore to be recommended.